HEALTH IMPACT ASSESSMENT
Flaxmere Town Centre
Urban Design Framework
Proposal

Prepared by: Maree Rohleder and Ana Apatu
Hawke’s Bay District Health Board

In Partnership with: Philip McKay
Hastings District Council

With assistance from: Quigley and Watts Ltd

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Maree Rohleder, Health Protection Officer and Ana Apatu, Senior Population Health Advisor (Hawke’s Bay District Health Board) would like to acknowledge Philip McKay Senior Planner, Hastings District Council and Dawne MacKay former Senior Planner, Hastings District Council for their support of the health impact assessment process.

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Foreword

Health Impact Assessment (HIA) is a systematic way of identifying the potential impacts on the health and wellbeing of a population of any proposed policy, strategy, plan or project, prior to its implementation. The systematic use of a number of procedures, methods and tools can enable planners and decision makers to check their assumptions against the potential and sometimes unintended effects on the health of a population, and the distribution of those effects across the population, the aim being to ensure that no population groups will be disproportionately affected.

HIA processes lead to recommendations that are evidence-based, focus on outcomes, and set out practical ways to enhance the positive effects of a proposal and minimise any negative effects. HIA is, therefore, an important tool to use where the goal is to reduce inequalities in health.

The foundations for good decision-making on environmental health issues, such as those that relate to quality urban design, lie in the meaningful involvement of affected people in the community and giving them control over planning processes. This has particular relevance for the Flaxmere community.

Quality urban design sets out to achieve the following:

- creates safe, attractive and secure pathways and links between centres, landmarks and neighbourhoods
- facilitates green networks that link public and private open space
- places a high priority on walking, cycling and public transport
- anticipates travel demands and provides a sustainable choice of integrated transport modes
- improves accessibility to public services and facilities
- treats streets and other thoroughfares as positive spaces with multiple functions
- provides formal and informal opportunities for social and cultural interaction
- facilitates access to services and efficient movement of goods and people
- provides environments that encourage people to become more physically active.

(New Zealand Urban Design Protocol)

This HIA has been funded by the Ministry of Health, through their Health Impact Assessment Unit. The Ministry established a ‘Learning by Doing’ Fund in 2007 and this fund has enabled Hawke’s Bay District Health Board to carry out this and a number of other HIAs during 2008/09. An evaluation is also being undertaken to support the development of the HIA and to measure its process and impact.
Executive Summary

Flaxmere town centre was developed in the 1970s. It is privately owned and is made up of several small commercial premises including a supermarket, post shop and health service providers. Associated with the town centre are a number of community and recreational facilities, including an adventure centre, library and a swimming pool complex. These facilities are located on Hastings District Council owned site of 5.63 hectares. The balance of this site is vacant. A map showing the town centre and the surrounding area is attached as Appendix 1.

This discrete urban community within the Hastings District has a high deprivation index \(^1\) and significant health issues. The Flaxmere Town Centre Urban Design Framework project has three main objectives which would significantly benefit the health and wellbeing outcomes of the Flaxmere community:

- **A strong, prosperous and thriving economy:** by looking at the options for improving the performance of the Flaxmere town centre, the recreation precinct and the residential area and the interrelationships between these.

- **Safe and secure communities:** by addressing safety issues, that have been raised by the community, in the design improvements for the town centre and the way it relates to the residential areas that surround it. Safer public spaces promote greater community participation.

- **An environment that is appreciated, protected and sustained for future generations:** by providing opportunities to improve the urban form and allowing

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\(^1\) NZDep2006 combines nine variables from the 2006 census which reflect eight dimensions of deprivation (Income, owned home, support, employment, qualifications, living space, communication & transport).

The NZDep2006 index of deprivation scale ranges from 1 to 10, where 1 represents the areas with the least deprived scores and 10 the areas with the most deprived scores. An area with a value of 10 is in the most deprived 10% of areas in New Zealand, according to the NZDep2006 scores.
sustainability initiatives to be introduced, including better linkages and relationships between the town centre, recreation precincts and residential areas.

The Hastings District Council (HDC) was invited by the Hawke’s Bay District Health Board (HBDHB) to participate in a health impact assessment on the Flaxmere Town Centre Urban Renewal Framework. The HDC has developed four options for the Flaxmere Town Centre Urban Design Framework and these are attached as Appendix 2.

This Health Impact Assessment (HIA) focuses on the wider concept of the town centre urban design framework. It does not address the merits or otherwise of the four individual design options. This has enabled the HIA appraisal workshops to concentrate on the issues surrounding the overall concept of the framework and has intentionally avoided focus on detail.

Public health and wellbeing are not solely the domain and responsibility of the health sector, as many people assume. The health sector spends the majority of its budget on treating people when they are unwell, with only a very small amount (approximately 2 percent) being directed to services and programmes that prevent illness. Other public sector areas are often better placed than health to affect, protect, and promote population health. Their actions can have a significant impact on environmental and social health.

A typical HIA takes place in four stages and draws together evidence from the social science literature, representatives of the community, community organisations and the local authority, in this case the Hastings District Council.

In this instance, the HIA compared the status quo (what exists now) with the proposed concept of a town centre urban design framework for Flaxmere. It was decided to look at the framework’s potential effect on transport, economic factors, safety and neighborhood housing on the population groups of Pacific families, Māori youth and the elderly. These factors and population groups were selected, as they were considered likely to be most affected by the proposal.
Findings

- The HIA found strong evidence that increased opportunities for residents to walk or cycle, as mode of transport, is likely to positively affect population health and wellbeing. Evidence indicates that walkable urban environments are associated with greater use of public transport and increased physical activity levels. Although there are currently low levels of these active forms of transport in Flaxmere, a third of Hawke’s Bay residents have indicated they are open to the idea of walking or cycling to work.

- Evidence from this HIA indicates employment, economic growth and income are closely linked with quality of life. Unemployment and poor working conditions are associated with adverse effects on health and wellbeing. The Flaxmere area suffers economically as a result of geographic isolation and high development costs, but there is an increasing emphasis on local economic development needs.

- Although Māori and Pacific peoples are over-represented in terms of low incomes and poor educational outcomes, cultural specific initiatives such as kura kaupapa are considered likely to improve future outcomes for the Flaxmere community.

- Evidence suggests both perceived and actual crime levels affect health and social exclusion. Some aspects of design of the urban environment may foster opportunities to commit crimes or anti-social behavior, such as low visibility and poor surveillance of public spaces.

- Compared with the general population, both Māori and Pacific peoples are at a higher risk of being victims and perpetrators of crime. While older people as a group, experience relatively lower levels of crime victimisation, perceptions of crime levels and associated anxiety can contribute to social exclusion and poor mental health.

- A range of benefits are associated with neighborhood design and connectivity of streets. New Zealand research indicates that street connectivity levels are linked with the likelihood of walking or cycling, which has positive implications for both mental and physical health. There are also close links between accessibility of parks and other green spaces and levels of social cohesion and mental health.
Development of a ‘sense of place’ for Flaxmere, was identified by both stakeholders and the literature review as essential to developing a vibrant town centre. This can be assisted by incorporating the principles of the Te Aranga Maori Cultural Landscape Design Strategy\(^2\) in the Flaxmere Town Centre Urban Design Framework.

There is mixed evidence about the impact of geographical locations of fast food restaurants on levels of obesity. As a result of the Flaxmere Town Centre Urban Design Framework, there is a potential for fast food outlets to become established in Flaxmere. There is convincing evidence that high intake of energy–dense nutrient–poor foods, commonly linked with fast food outlets, contributes to weight gain and obesity.

Having a correctly sized supermarket for the population of Flaxmere, could attract other retail services to the area. The supermarket needs to be economically viable and connected to the town centre, be in a good location, have appropriate roading and parking and promote competition (through competitive pricing). This in turn will cause the town centre to become more vibrant, with more places to sit, eat and socialise all contributing to increased social connectedness.

In conclusion, there is evidence that links quality urban design and wellbeing and health, with especially strong evidence that the urban environment impacts on opportunities to undertake physical activity, for either transport or leisure. From a public health perspective there is a need to build a safer urban environment, making good use of attractive and accessible green space, and encouraging greater physical activity through urban and streetscape design.

\(^2\) The Te Aranaga Maori Cultural Landscape Design Strategy provides a practical means by which iwi and hapu along with their designers and artists may meaningfully engage with local, regional and central government to progressively transform the natural and built environment to better reflect tangata whenua histories, identity and aspirations.
Recommendations

The following recommendations are drawn from this Health Impact Assessment:

That the Hastings District Council should proceed with implementing the Flaxmere Town Centre Urban Design Framework. Incorporating the principles of Quality Urban Design in the Flaxmere town centre will help to create a ‘sense of place’ for a community which will be intrinsically connected to community health and wellbeing:

That the Hastings District Council ensures ‘sense of place’ and connectedness issues are addressed within the redesign of Flaxmere. Stakeholders specifically requested the Council explore opportunities for linking the town strongly with the vineyard experience, promoting Te Aranga Marae and developing holiday accommodation in the area. Physical links via cycleways and/or roading, and promotion of Flaxmere as a hub for cultural activities offer substantial opportunities.

That the Hastings District Council incorporates the concept of the Te Aranga Maori Cultural Landscape Design Strategy and other local initiatives into the Flaxmere Town Centre Urban Design Framework. The Te Aranga Māori Cultural Landscape Design Strategy provides a practical means by which iwi and hapu, along with their designers and artists, may meaningfully engage with local, regional and central government to progressively transform the natural and built environment to better reflect tangata whenua histories, identity and aspirations.

Other local initiatives include sponsorship of public art on pavements, mobile barbeques, farmers markets, community gardens (using traditional Māori techniques), use of flax plantings in the landscape, views of Te Mata Peak, youth involvement in building and maintaining environments, and local stories reflected within the design. Such initiatives are examples of building a strong sense of place, and have the potential to generate substantial wellbeing outcomes.
That the Hastings District Council ensures quality building design of new buildings, especially housing, ensuring noise control standards are met to prevent sleep disturbance resulting from mixed use housing.

That the Hastings District Council incorporate the principles of Crime Prevention Through Environmental Design (CPTED) in Flaxmere Town Centre Urban Design Framework. As the number of people increase in an area, the perception of safety can improve if the environment is conducive to this. CPTED principles when reviewing designs has the potential to reduce fear, prevent situational crime and target criminal and anti-social behaviour. This in turn has the potential to generate large positive health and wellbeing impacts. Such an action supports the existing Central Business Districts’ Safety Plan.

That the Hastings District Council continues to explore the economic and employment opportunities for Flaxmere to facilitate the positive pathways which were identified during the HIA. Investigating the placement of a correctly sized supermarket for the population of Flaxmere is critical for future employment and economic development of other businesses. The development presents substantial opportunities for the creation of new jobs and increasing local employment, which will benefit social wellbeing. Any ability to maximise local jobs is strongly recommended. Levels of employment and economic growth, along with personal and household income and expenditure, are closely linked with people’s ability to secure a good quality of life for themselves and their families. This includes their ability to purchase adequate housing, health care and education. Employment is related to an individual’s ability to participate in social activities and enjoy a sense of belonging in their community. This concept was also demonstrated in evidence given to the Environment Court in 2006 which showed that having a supermarket in a development increased the number of jobs for the retail area and there was an increase in people “cross shopping”. This therefore led to more people being in the retail area.

3 The term ‘cross shopping’ refers to people who go to the supermarket but also do additional shopping on the way to or from the supermarket.
That the Hastings District Council be aware of the potential for fast food restaurants and additional alcohol outlets to become established as a result of the Flaxmere Town Centre Urban Design Framework. Both have the potential to increase the risk of negative health and wellbeing outcomes for local residents, especially as the plan seeks to attract additional people to the town centre. It was noted that controls available to Council are limited via current statutory processes. A Council-controlled authority having ownership of the new retail buildings in the town centre and therefore control over tenants, may be one option worth exploring for Flaxmere if the residents want limits placed on the number of such outlets.

That the Hastings District Council investigates increased public transport and active movement options for the community of Flaxmere. Upgrading and construction of safe well-lit walking and cycling paths, plus the provision of affordable public transport (and awareness-raising campaigns regarding these) are recommended. These would link existing facilities and neighbourhoods together, and to the town centre. For example, ensuring safe walking access for the large housing complex, for older people. Clear and logical layouts of connections are required to achieve potential benefits, and local residents are well placed to review suggested layouts. Public transport and active movement has the potential to increase accessibility to the town centre and presents multiple known positive effects on wellbeing.

That the Hawke’s Bay District Health Board and the Hastings District Council along with other stakeholders undertake a benchmarking exercise of the current health and well-being indicators in Flaxmere and then monitor these indicators at regular intervals after the implementation of stage 1 of the Framework. This will provide a baseline against which to measure the relative success of the changes made and will provide guidance as to what additional changes may be required at later stages.
Background

There is increasing recognition of the role that various social, economic, environmental and political factors play in determining the health experiences and outcomes for individuals and social groups. These determinants include income, employment status, housing, education, social position and social exclusion. They can have both direct and indirect impacts on health, as well as having interrelated and cumulative effects over lifetimes. Urban design can be a significant determinant of wellbeing in a community.

*Poor health, like poor education, holds back many people. Moreover, the cycle of poor health, unemployment and poverty compounds over a person’s life. (Ministry of Health 2002)*

There is clear evidence that the factors which influence wellbeing are not equally distributed between Māori and non-Māori and this is the main cause of higher death and disability rates for Māori. It is therefore important to concentrate on upstream measures and interventions that impact on these determinants of wellbeing.

Flaxmere is a discrete urban community within the Hastings District. It has a high deprivation index and significant health issues.

Current Situation within Flaxmere

Flaxmere town centre was developed in the 1970s. It is privately owned and includes several small commercial premises including a small supermarket, post shop and a pharmacy and other health service providers. Associated with the town centre are a number of community and recreational facilities including an adventure centre, library and a swimming pool complex. These facilities are located on a Hastings District Council owned site of 5.63 hectares. The balance of this site is vacant. A map showing the town centre and its surrounding area is attached as Appendix 1.
The Flaxmere town centre consists of a series of cul-de-sacs with little connectivity or linkage through the area (Hastings District Council 2007a). The town centre currently contains no residential space and the limited mix of commercial and other activity is mostly restricted to weekdays. Currently, Flaxmere town centre has only 20% of the expected retail space per person, (calculated at 2m² retail space per person in Flaxmere) compared with a national average 10m² of retail space per person. It should be noted that it would not generally be expected that the total 10m² of retail space per person would not be generally expected to all be provided in the suburb or town in which the person lives, some of it would contribute to retail space in the closest regional shopping centre.

The existence of several informal walking paths across reserves in Flaxmere suggests that walking is an important mode of travel in the area (Hastings District Council 2007a). The local schools, library and leisure facilities are well located for pedestrian access. Although the roads are wide enough for cycling, it does not appear to be a common mode of transport (Hastings District Council 2007a) for Flaxmere residents.

**Active Movement**

A recent survey of physical activity levels in Hawke’s Bay included a proportion of Flaxmere residents in the sample (10%) but did not report any findings specific to Flaxmere (Cinta Research 2008). Although the survey found 63% of Hawke’s Bay respondents had been regularly physically active for over 6 months, only 54% stated they were happy with their current fitness and 31% said they were not regularly active. The least physically active groups included women, beneficiaries/unemployed people and those with an annual income less than $10,000 per year. The survey found low levels of walking and cycling for transport in the Hawke’s Bay region, with only 8% of respondents walking to work most days and 2% cycling. Nonetheless, a third of respondents (34%) said they were open to the idea of walking or cycling to work once a week (Cinta Research 2008).
The survey also uncovered a low level of awareness of walking and cycling facilities or groups in the region. For instance, only 36% of Hawke’s Bay respondents were aware of local walking groups and only 38% were aware of a cycling path in their area (Cinta Research 2008). From these figures, it is not possible to gauge whether this is a problem of a low level of awareness or a lack of provision of walking or cycling groups/facilities.

**Transport**

There is an extremely low rate of public bus use in Flaxmere, and there is limited public transport operating within Flaxmere to get to the town centre as well as between Flaxmere and Hastings (a single bus service). In 2006 more than 60% of residents in Flaxmere were either a driver or passenger in a car to get to work. Fifty three per cent drove a private vehicle to work, 6.3% drove a company vehicle, 10.6% were a passenger in a private or company vehicle, and only 0.6% travelled by bus (Statistics New Zealand 2006). Ten per cent of Flaxmere residents either did not work that day, or worked from home.

A recent survey found that 80% of respondents from the Hastings District (including but not specific to Flaxmere) said they did not have a public transport alternative for the journey they made most often (New Zealand Business Council for Sustainable Development 2008). This figure was higher than the national figure of 63% and was the second highest in New Zealand. Only 12% said they did have a public transport alternative, compared with 28% of respondents across New Zealand. However, the survey authors noted that care should be taken when examining the data from smaller subsamples, such as the local area data. Discussions with members of the Flaxmere community and the Council, as part of the HIA process, have confirmed the low availability of public transport options in Flaxmere.

Flaxmere households have a slightly higher proportion of households without access to a car compared to Hastings. In Flaxmere, 8.4% of households had no access to a car in 2006, compared with 7% of households in Hastings as a whole. In Flaxmere 35.3% had
access to one car which is slightly lower than the national figure of 36.3% (Napier City Council 2007).

The draft urban design framework for Flaxmere notes that it is difficult to live in Flaxmere without a car due to the lack of shopping and employment infrastructure in the town centre (Hastings District Council 2007a). The shopping centre tends to be dominated by vehicles.

**Economy**

Flaxmere has undergone a number of changes over the past few decades, many of which were related to a lack of economic development. In the 1970s, the economic development that took place (planned commercial, recreational and social facilities) in Flaxmere was much slower than was needed, the costs of development exceeded the available revenue (Johnson 2005). As the population grew throughout the 1970s and more young people moved to the suburb, there was increased concern that Flaxmere did not have the facilities (e.g. kindergartens, shopping centres, recreational activities) to support the growing population. In 1990, the new Hastings District Council looked at ways of developing Flaxmere. Six councillors formed a group designed to look at local issues, liaise with the Community Trust, to advocate for a new high school, and promote ‘beautification schemes’ within Flaxmere (Johnson 2005). However, it was not until the beginning of the 21st century that Flaxmere residents saw the opening of Te Aranga Marae (considered at the time to be the first truly multicultural marae in New Zealand), Te Kura Kaupapa Māori O Ngati Kahungunu Ki Heretaunga (the Māori language school) and the Eastern Institute of Technology (Johnson 2005).

**Employment**

Flaxmere’s town centre provides a few jobs, but most Flaxmere employees are employed locally in surrounding agricultural and industrial businesses, with a smaller percentage commuting into Hastings or Napier for work (Hastings District Council 2007b). In Flaxmere, at the 2006 Census, 3582 people over the age of 15 were employed. Unskilled
occupations dominated the Flaxmere employment sector with almost one third (31%) of Flaxmere residents employed as labourers, and 10% employed as machine operators and drivers, and as technicians and trades workers. The industries dominating the employment sector were manufacturing (22%), and agriculture, forestry and fishing (12% collectively).

The concentration of many Flaxmere residents in unskilled employment is reflected in the median household income in Flaxmere which was $40,200 annually, slightly below the regional median of $44,200 and well below the national figure of $51,400 (Hastings District Council 2007a). The number of people in Flaxmere on the unemployment benefit as of June 2009 was 281, compared with 102 in June 2008 and 265 in June 2004. (Ministry of Social Development 2009). The numbers of working-aged main benefit recipients (aged 18–64 years, includes all benefit types) was 1560 in June 2009 compared to 1388 in June 2008 and 1701 in June 2004 (Ministry of Social Development 2009).

**Neighbourhood Housing**

Of the nearly 3000 houses in Flaxmere, 40% are rented, including around 300 houses or units owned or managed by Housing New Zealand (Hastings District Council 2007a). A large housing complex for older people, the council’s largest, is located close to the town centre. Although the area has sufficient open space overall, the draft urban design plan for Flaxmere notes concerns about the safety and usability of some of the existing parks and open spaces.

**Housing development patterns**

In the eighties a government scheme was implemented to assist people on low incomes to buy their own homes in Flaxmere, however people on low incomes could only afford cheap substandard homes. The pattern of housing development has also encouraged the development of second houses on properties, often without consideration of amenity or robust design or construction. Hastings District Council allowed cross-leasing of the sections which enabled compact development of housing (McLeod 2001). This type of intensification should be distinguished from planned housing intensification where
buildings are designed to accommodate more people, as opposed to fitting more low quality houses onto small amounts of land.

In a survey on infill residential development (Opus International Consultants 2007), 638 Kingsley-Chatham residents (an area of Flaxmere) rated the most common reasons for what they disliked about their neighbourhood as ‘houses located too close together’ and ‘section sizes being too small’ (first equal most frequent reasons). These two issues also featured in the top three reasons for residents in other Flaxmere areas (Flaxmere East and Lochain).

For Flaxmere residents, the most frequent response to the question “What do you like about your neighbourhood?” was proximity to schools, parks and walkways. This was followed by safe neighbourhood, large section sizes, affordability of housing, proximity of services, and variety of housing designs (Opus International Consultants 2007).

**Streetscape design**

The structure of the street network in Flaxmere tends to be comprised primarily of wide streets but there are problems with ‘dead ends’ and the dumping of rubbish (McLeod 2001). There are concerns about under-development and unattractiveness of spare green spaces, for instance areas of waste land are used for crime and there is a lack of planting. In addition, there are only limited pedestrian walkways.

**Safety**

While there has been an increase in a range of specific crimes including homicides, burglaries, grievous/serious assaults, intimidation/threats, sexual attacks and cannabis use over the past two to three years, the overall crime rate reduced in the Hastings district by 21% between 1997 and 2006 (Bevin 2007). The Hastings District Council recognises that safety is an issue for its residents. In the Draft Central Business Districts’ Safety Plan for Hastings, Havelock North and Flaxmere (Hastings District Council 2007c), the six key goals centre on increasing safety and reducing crime:
• provide visible and comprehensive security and policing
• promote responsible alcohol use and management
• increase the perception of safety
• address the crime and safety issues relating to youth
• create a safe physical environment
• reduce the presence of graffiti (Kaye 2008).

Aspects of the current design of Flaxmere may contribute to crime levels in terms of providing opportunities for antisocial or criminal behavior, and low visibility and public surveillance. For instance, the currently enclosed Flaxmere walkway provides little opportunity for surveillance, and increases opportunities for antisocial behaviour (Hastings District Council 2007a). Similarly, the skate bowl is isolated from other activities and may provide opportunities for crime or anti-social behaviour. The shopping centre faces inward, with poor passive surveillance at the rear (Hastings District Council 2007a) and such environmental factors are known to increase the perception and fear of crime.

Flaxmere Town Centre Urban Design Framework

The Hastings District Council has developed the Flaxmere Town Centre Urban Design Framework which has three main objectives and aims for the Flaxmere community:

• **A strong, prosperous and thriving economy** by looking at the options for improving the performance of the Flaxmere town centre, the recreation precinct and the residential area and the interrelationships between these.

• **Safe and secure communities** by addressing safety issues that have been raised by the community in the design improvements for the town centre and the way it relates to the residential areas that surround it. Safer public spaces promote greater community participation.
• **An environment that is appreciated, protected and sustained for future generations** by providing opportunities to improve the urban form, to allow sustainability initiatives to be introduced, including better linkages and relationships between the town centre, recreation precincts and residential areas.

As part of the information gathering for the urban plan, consultation with the community was undertaken by Chow Hill (an urban design company) for the Hastings District Council in August 2007. They found that the town centre needed to be assessed in relation to its context. This includes:

- Regional context: How it relates to the wider pattern of urban and rural settlement within the Hastings District and Hawke’s Bay Region
- Township context: How the town centre functions in relation to the wider Flaxmere Urban area
- Town centre context: the way that individual elements within the town centre and surrounding environs relate to each other.

The consultants then focused on the following town centre elements which were considered important:

*Access safety and vitality*

- the arrangement of the town centre and how the activities which are there currently are not integrated. Consequently there is little synergy (i.e. people coming to one activity do not then go on to use other activities),
- the town centre is also not safe as there are areas between the buildings which do not have good surveillance.
**Sense of place**

- The town centre was originally designed by John Scott, providing a reference point for future character. John Scott (9.06.1924 – 30.07.1992) was a New Zealand architect known for his unique buildings that incorporated ideas for Maori and cultural architecture.
- The private ownership of the shopping centre means control of footpaths and other elements that would normally be part of the public realm are controlled by the private landowner.
- There is little relationship between activities.

**Sustainable environments**

Adjoining the town centre is a further residentially zoned site of approximately 5.2 Ha which was being investigated for sale by Council. The council was working with a developer to try to develop a subdivision pattern that is more sustainable (sites addressing the street, connections maintained to the town centre, getting rid of unsafe walkway etc) than the conventional cul de sac approach. With the downturn in the housing market, however, the developer chose not to proceed. The Council remains the owner of the land in the mean time and residential subdivision based on best practice, sustainability and urban design principles, complementary to the town centre redevelopment, is a possibility for this land in the future.

**Economy**

- For a town of 10,000 people, the existing town centre has retail space to satisfy approximately 20% of the expected demand for retail. It is suggested that a figure of 50% is more realistic for the community the size of Flaxmere to meet its day-to-day needs.
- Site of approximately 5 Ha (Council owned) that is zoned Commercial Service, adjacent to the town centre, could be used to help establish a better pattern of development. Rezoning from Commercial Service to a more general commercial zoning will however be required.
Proposal Being Assessed by the Health Impact Assessment

The Hastings District Council has developed four options for consideration within the Flaxmere Town Centre Urban Design Framework and these are attached as Appendix 2. It was decided that the Health Impact Assessment would focus on the concept of the town centre urban design framework rather than the four individual options. This enabled the HIA appraisals to concentrate on the issues surrounding the overall concept of the Flaxmere Town Centre Urban Design Framework, thereby avoiding the risk that people would get caught up in the detail of the individual options.

Future Development

The Council is currently developing an implementation plan for the first stage of the Flaxmere Town Centre Urban Design Framework. This will involve confirmation of a street layout design for the town centre and the location for a supermarket, new retail shops and a central public open space. The implementation plan will also cost and schedule the necessary development work and proposed land tenure details.

To enable development to proceed, a change will be required to the District Plan to rezone the land identified for supermarket and retail development to an appropriate commercial zoning. The Plan Change process requires public consultation and the opportunity for submissions to be made in accordance with the Resource Management Act 1991 (RMA). Any Plan Change also requires an analysis of the costs and benefits of the proposed changes under section 32 of the Resource Management Act. This HIA provides information that this analysis could utilise.

The Hastings District Council have also indicated that it will be important to benchmark the current health and well-being indicators in Flaxmere, and then monitor these indicators at regular intervals after the implementation of stage 1 of the Framework. This will provide evidence of the relative success of the changes made and will provide guidance as to what additional changes may be required.
Health Impact Assessment

Health Impact Assessment (HIA) is a multidisciplinary approach that investigates the potential public health and wellbeing outcomes of a proposal. Its aim is to deliver evidence based recommendations that inform the decision-making process, to maximise gains in health and wellbeing and to reduce or remove negative impacts or inequalities. HIA uses the broad definition of health used by the World Health Organization:

“Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”

HIA is an internationally recognised approach that helps to protect and promote community wellbeing and public health.

The key reasons to undertake a Health Impact Assessment are:

- To help policy makers use a sustainable development approach
- To assist policy makers meet public health requirements of legislation and policy direction such as the Local Government Act (2002) and the Land Transport Management Act (2002)
- To help policy-makers incorporate evidence into policy-making
- To promote cross-sectoral collaboration
- To promote a participatory, consultative approach to policy-making
- To improve health and wellbeing and reduce inequalities in health
- To help policy-makers consider Treaty of Waitangi implications

Health Impact Assessment Process Used

The HIA process followed the standard methodology as described in “A Guide to Health Impact Assessment: A policy tool for New Zealand”. It is usual within an HIA to compare one proposed option against another, either comparing a proposal with business as usual or comparing various proposed options available. In this instance the ‘Status
Quo’ and the proposed concept of the Flaxmere Town Centre Urban Design Framework were compared.

The four key stages in a Health Impact Assessment process are:

- Screening
- Scoping
- Appraisal
- Evaluation/reporting.

**Screening**

Screening is the initial selection process undertaken to assess a policy’s suitability for health impact assessment. The screening for the Flaxmere Town Centre Urban Design Renewal Framework HIA was undertaken by Ana Apatu and Maree Rohleder, Hawke’s Bay District Health Board, Dawne Mackay, Hastings District Council and Robert Quigley, Quigley and Watts. This process confirmed that it would be appropriate to undertake a HIA on the Flaxmere Town Centre Urban Design Renewal. The report of the screening process is available from the authors on request.

**Scoping/Setting the Priorities of the HIA**

Scoping highlights the key issues that need to be considered and sets out what will be done in the HIA. The scoping meeting with key stakeholders was held at the Te Aranga Marae on the 15th April 2008. It was facilitated by Robert Quigley from Quigley and Watts. A report of the scoping meeting is available from the authors on request.

From the scoping meeting the group made the following recommendations about the HIA and its scope:

**Aim:**

To improve the health and wellbeing of Flaxmere residents by assessing the positive and negative health and wellbeing impacts of the Flaxmere Urban Design Framework and make recommendations about how to enhance the positive and mitigate the negative impacts and to achieve the following HIA objectives.
Objectives:

- Enhance partnership working between the Hastings District Council and Hawke’s Bay DHB through shared planning and resourcing.
- Contribute to an increased awareness about public health, equity and inequalities, health impact assessment and the link between health and urban design for Hastings District Council and the Hawke’s Bay DHB.
- To build capacity for Hawke’s Bay District Health Board and Hastings District Council staff to use HIA in Hawke’s Bay.
- To deliver the findings in a user-friendly manner to both the DHB and the Council.
- To disseminate the HIA findings into the wider policy arena of all relevant agencies.

Determinants of Wellbeing and Health

The scoping group decided to focus on the following determinants:

- Transport
- Economy
- Safety
- Neighbourhood housing

Population Groups of Interest

The scoping group decided that the population groups that the HIA should focus on would be:

- Pacific families
- Māori youth
- Elderly.

Appraisal

The aim of this stage was to appraise the proposal’s potential to affect wellbeing and population health, if the framework is implemented as outlined. This stage also
determined what practical changes could be made to the proposal to promote and protect wellbeing and health.

For this HIA several sources of evidence were used to assist in undertaking the appraisal. These were:

- Review of key documents (undertaken by Quigley and Watts)
- Community profile
- Interviews and workshops with community and key stakeholder groups
- Scan of relevant policy and strategy documents.

**Evaluation**

This assesses how the HIA process was undertaken (process evaluation) and the extent to which the recommendations were taken up by the policy makers (impact evaluation). The evaluation was undertaken by the HIA Research Unit at the University of Otago. It will be available from the authors of this report once the HIA has been completed.
Appraisal Findings

Literature Review

The full literature review is available as Appendix 3. It focused on the four determinants and the relevant interest groups identified in scoping. A summary of the literature review is as follows:

Transport

- The review found strong evidence that increased opportunities for residents to walk or cycle for transport is likely to positively affect population health and wellbeing. Evidence indicates that walkable urban environments are associated with greater use of public transport and increased physical activity levels. Although there are currently low levels of active forms of transport in Flaxmere, a third of Hawke’s Bay residents are open to the idea of walking or cycling to work.

Economy

- Evidence in this review indicates employment, economic growth and income are closely linked with quality of life. Unemployment and poor working conditions are associated with adverse effects on health and wellbeing. The Flaxmere area has suffered economically due to its geographic isolation and high development costs but there is increasing emphasis on local economic development needs. Although Māori and Pacific peoples are over-represented in terms of low incomes and poor educational outcomes, culture-specific initiatives such as kura kaupapa are considered likely to improve future outcomes.

Safety

- Evidence suggests both perceived and actual crime levels affect health and social exclusion. Flaxmere currently has a high media association with violent crime. Some aspects of the design of the urban environment may foster opportunities to commit crimes or anti-social behavior, such as low visibility and poor surveillance of public spaces. Compared with the general population, both Māori and Pacific peoples are at a higher risk of being victims and perpetrators of crime. While older people as a group have relatively lower levels of crime victimisation,
Neighbourhood housing

- A range of benefits are associated with neighbourhood design and connectivity of streets. New Zealand research indicates that street connectivity levels are linked with the likelihood of walking or cycling to work in Auckland, which has positive implications for mental and physical health. There are also close links between accessibility of green spaces such as parks and levels of social cohesion and mental health.

- In conclusions, there is evidence that links quality urban design and wellbeing and health, with especially strong evidence that the urban environment impacts on opportunities to undertake physical activity, for either transport or leisure. From a public health perspective there is a need to build a safer urban environment, making good use of attractive and accessible green space, and encouraging greater physical activity through urban and streetscape design.

**Causal Pathways**

Causal pathways are important tools used when carrying out Health Impact Assessments as they show potential linkages between ‘cause and effect’. Feedback and evidence from the stakeholders meetings and the literature review are illustrated in the following causal pathway diagrams (Figures 1 & 2). The pathways show points at which changes could be made to enhance potential positive and reduce potential negative aspects of the proposal. These pathways are discussed more fully later in the document.
New Town Centre Model

- Supermarket
  - Draw Shoppers away from existing shops/centre
  - Perception of loss of land/recreation space for young people
    - Town centre vibrancy decreased
    - Loss of PA
      - Threat to existing retailers
        - Loss of income for some
        - Reduced social
          - Physical and mental wellbeing
          - Mental health and wellbeing
    - High density housing
      - Increased people living in centre
      - Increased pocketing (ghetto)
        - Force people out of area
          - Increased crime
            - Increased violence
              - Increased social problems
                - Social dislocation
                - Mental health and wellbeing

Status quo

- Lack of services
  - Multiple liquor outlets
    - Road layout
      - Fear of nature
        - Disconnection to suburbs to the region
      - Travel, jobs
        - No entrance way
      - Lack of passive surveillance
        - Town centre bypassed
      - Financial impact
        - No after hours public transport
        - People hitch
      - Social connect
        - Fear Injury Activity
        - Social connect
      - Financial impact
        - No after hours public transport
        - People hitch

- Retail growth
  - Supermarket expensive
    - No seating
      - No clothes shops
      - Travel
        - Crime issues
        - Financial impact
        - Travel, jobs
          - No entrance way
        - Town centre bypassed
        - Lack of passive surveillance
          - Financial impact
          - No after hours public transport
          - People hitch

Negative health and wellbeing

Decrease in Whanau Ora

Figure 1 Negative Pathways
NEW TOWN CENTRE MODEL WITH A HEART

- Medium density near town centre
- Increased accessibility
- Appropriate retail outlets, social facilities and green space
- Supermarket economic anchor

Near social and cultural facilities

Create a unique Flaxmere identity reflecting:
- Culture
- Art
- Wine

Increase sense of place and belonging

InCREASE IN SENSE OF PLACE

Vibrancy of town centre

Promote economic growth

Reduced reliance on private vehicles

Appropriate range of affordable services

Places to sit, eat & socialise

Increased access to low cost fruit & vegetables

Promotes strong relationship between council & business

Good location

Connected to town centre

Roadbing and parking appropriate

Promotion of competition

Increased retail and social services

Local jobs

Increased safety & less crime

Active movement

Social connectedness

Increased mental wellbeing

Increased money to access goods & services

Social connectedness

Improved dietary intake

Good place to do business

Positive health & wellbeing outcomes

Increase in Whanua Ora

Positive health & wellbeing outcomes

Increase in Whanua Ora

Figure 2 Positive Pathways
Discussion

The causal pathways summarise the evidence that was gathered for this HIA report and will be used to guide the following discussion. The topics for discussion are drawn from those factors that appear at key points/junctions in the causal pathway diagrams.

Medium Density Housing

The Flaxmere Town Centre Urban Design Framework is proposing to increase the amount of medium density housing around the town centre. The stakeholders commented that they wanted “excellent building design” as the “community has less resources than other communities to start with”. Some of the stakeholders also discussed the possibility of apartment living and others commented that Flaxmere needs more tourist accommodation as currently there are only “boarding houses”.

The stakeholders also thought that by having the medium density housing near the town centre, one of the flow on effects would be the ability to have more cultural and social facilities. Stakeholders did suggest that the developments matched the vision of the area and there was a mix of housing for young and old. There was some concern expressed regarding the potential mixture of activities and noise disturbances, causing a lack of sleep.

Increased Accessibility

The proposed urban design concept would allow increased accessibility within the town centre, including safe walking and cycling routes. This was positively received by the stakeholders. They wanted to ensure “walkability” is maintained throughout the centre and there are good cycle networks. Other stakeholders felt that walking would be encouraged by having more homes close to the town centre.

The pathways also illustrate how increased accessibility might lead to public transport becoming more viable in Flaxmere, supported by the increasing number of people wanting to come to and from the town centre. It is also proposed that the new housing
within the town centre will be a source of new public transport users as they will be within easy walking distance of the town centre bus stop.

Good connections enhance choice, support social cohesion, make places lively and safe, and facilitate contact among people. Quality urban design recognises how all networks (streets, walking and cycling routes, services, infrastructure, and communication networks) connect and support healthy neighbourhoods, towns and cities. Places with good connections between activities and with careful placement of facilities, benefit from reduced travel times and lower environmental impacts. Where physical layouts and activity patterns are easily understood, residents and visitors can navigate around the city easily.

Stakeholders also discussed building the relationship between Flaxmere and the surrounding vineyards into the central design, by linking the town centre strongly to the vineyard experience and providing physical links between the vineyards and the town centre via roading or cycle paths.

**Sense of Place**

Increased accessibility and medium density housing pathways lead to an increased ‘Sense of Place’, which links with having a more vibrant town centre and more people frequenting the town centre. International and national literature shows that having a vibrant town centre, based on urban design standards, would create a vibrant urban environment with a rich mix of activities. Stakeholders talked of sponsorship of public art on pavements, urban mobile barbecues and getting community traders marketing the town as a vibrant town centre.

Another pathway which makes this connection to ‘sense of place’ is having appropriate retail outlets, social facilities and green spaces which attract retail and social services. This also leads to an appropriate range of affordable services. The pathways also show that cultural identity is important to developing a ‘sense of place’.
It was suggested that the library could be expanded and this could include internet facilities. The provision of more public telephones around the housing area was raised. Stakeholders discussed the cultural facility/centre being a “tourist attraction” which would encourage more people into the town centre. Other suggestions included a mini golf course and driving range. All would contribute to the creation of a ‘sense of place’.

**Description of Sense of Place**

Rau Hoskins (Public Health Advisory Committee (2008)) gives the following description of “sense of place”:

*The ability to maintain a cultural and spiritual connection to urbanised cultural landscapes remains a key challenge for iwi and hapu whose tribal areas have been both progressively and rapidly developed and often degraded. In exploring the issue of sense of place for a Māori perspective there are several strands of thought to be investigated some of which are closely linked to non-Māori or general sense of place issues. A kaupapa Māori sense of place connotes a feeling of belonging to that place as opposed to that place belonging to you. It is intimately connected with a holistic and inclusive worldview whereby the individual is not the actor on a passive stage but rather part of a broader ensemble of actors. This view acknowledges the mauri or life force within all living and non-living things and that the mauri of each element of the environment needs to be acknowledged, respected and protected. Thus a Māori sense of place is necessarily a reciprocal one whereby one’s relationship to that place is nourished by a myriad of connections.*

Rau Hoskins further comments that urban landscapes should actively restore and reinscribe tribal histories and allow for a visible and living tangata whenua urban presence. Here a process of reinscribing cultural histories within the built and natural environment can allow for a reconnection with place and in so doing reimbue and restore a sense of place for tangata whenua, Taurahere and Tauiwi alike. An example of this can
be seen at the Viaduct Basin in downtown Auckland. The use of a number of elements and symbols of cultural significance to Ngati Whatua o Orakei ensures that the physical environment begins to reflect their tangata whenua status and tell some of their stories. Some of the suggestions from the stakeholder workshops in Flaxmere focused on the importance of this, with the use of flax in the landscape and the significance flax had for the community.

Rau Hoskins also talks about appropriate landscape interventions which can act as essential re-connections back to the Māori world. He discusses an example in Auckland:

Thus the planting of both nikau and other natives down Queen Street is important in allowing the energy of the Māori natural world to permeate urban spaces and consciousnesses. Further more with the rakau come the whakapapa (the genealogies of the trees), the stories, cultural uses (ronga, whare materials) the manu (native birds) and the connection to Te Moana nui a kiwa (the Pacific Ocean) with the nikau being named after the coconut palm widely utilised in Polynesia and known as kikau in the Cook Islands.

Stakeholders also felt strongly about this and made several suggestions which included ensuring views of Te Mata Peak are built in open spaces wherever possible.

Rau Hoskins summarises that Māori have a sense of landscape that is intrinsically connected to health and wellbeing:

- It includes past, present and future
- It includes both physical and spiritual dimensions
- It is how we express ourselves in our environment
- It connects whanau and whenua through whakapapa
- It does not disconnect urban from rural
- It is not just where we live, it is who we are.
The Te Aranga Māori Cultural Landscape Design Strategy seeks to provide a practical means by which iwi and hapu along with their designers and artists may meaningfully engage with local, regional and central government to progressively transform the natural and built environment to better reflect tangata whenua histories, identity and aspirations.

This strategy was developed at a hui at the Te Aranga Marae in Flaxmere in 2006. In the words of the Strategy:

**Te Aranga – will advocate and work toward the reinstatement, development and articulation of the physical and metaphysical cultural landscape of whanau, hapu and iwi that we may see ourselves reflected in the landscape. Furthermore the hui attendees assert that the development and articulation of the Māori cultural landscape will contribute to the health and wellbeing of all who reside in and visit Aotearoa.**

In summary the kaupapa of the strategy is:

- **Te whakatipuranga o te taiao**
  *Healing of the environment*

- **Te whakatinanatia I nga wawata Māori o te taiao**
  *Embodiment of Māori aspirations in the built environment*

- **Te puawaitanga o te taiao**
  *Manifestation of the Māori cultural landscape.*

Stakeholders also strongly reflected this during discussions. They advised asking locals about the design required help create a ‘sense of place’ for the town centre of Flaxmere. They suggested having a community garden using traditional Māori techniques and were keen to have a cultural festival/market in the town. They also suggested using locals (particularly local youth) to build and maintain areas. The youth could also put their art into the public spaces as well.
The causal pathways then link into several different topic areas:

- Active movement
- Public transport
- Safety
- Economic growth
- Employment.

**Active Movement**

The positive pathways demonstrate the link between ‘sense of place’ and an increase in active movement, which leads to an increase in physical activity which contributes to wellbeing.

A recent systematic review concluded that there is a correlation between the urban environment, obesity and physical activity levels (Raine et al 2008). Studies consistently show that factors such as urban sprawl, low density and low land use mix are associated with sedentary behaviour and low activity levels. When compared with car-oriented neighbourhoods, walkable neighbourhoods with grid street networks and public transport, tend to have higher rates of physical activity and public transport use.

The links between physical inactivity and adverse health outcomes are well established in research. A strong body of national and international evidence has confirmed associations between physical inactivity and a wide range of conditions including coronary heart disease, stroke, cancer, osteoporosis, fall related injuries, type 2 diabetes, high blood pressure, depression and anxiety (Public Health Advisory Committee, year).

Encouraging physical activity in daily routines such as the journey to work, school or shops, is consistent with the evidence of the health benefits of small amounts of moderate intensity daily exercise (Tobias and Roberts 2001).

The pathways also show that an increase in active movement also increases social connectedness and mental wellbeing. There are links between car dependence and lack
of social cohesion. Several features of an urban sprawl have been linked to a weakened sense of community, including leapfrog development, low density and car dominance. (Public Health Advisory Committee 2008)

Public Transport

More people using the town centre may lead to a reduced reliance on private vehicles which in turn may cause more active transport (walking and cycling) and an increase in disposable income available to access goods and services. The pathways also show that by having increased accessibility to the town centre through better availability of public transport within and beyond Flaxmere, will lead to more people in the town centre the potential which in turn will increase the viability of public transport.

Research from both transport and public health sectors confirms a link between increased access to public transport and positive health effects (Public Health Advisory Committee 2008). Provision of frequent and accessible public transport is beneficial to health through reducing dependence on cars, reducing emissions, and increasing opportunities for walking or cycling. These effects are associated with positive health outcomes such as improving cardiovascular and respiratory health, increasing physical fitness levels and improving mental health (Public Health Advisory Committee 2008).

The disconnection between the suburb and to the rest of the region caused by no specific or clearly marked entrance into the suburb of Flaxmere is demonstrated in the negative pathways. This increases the cost of travel into Flaxmere for employment and also causes the town centre to be frequently bypassed, which has a financial impact on both the residents of Flaxmere and the retail sector.

The proposed Flaxmere Urban Design Framework notes that there is currently a limited pedestrian network between the town centre and surrounding residential areas. It is one of the intentions of the Framework to address this issue.
**Safety**

The positive causal pathway also shows a potential link between the vibrancy of the town centre and an increase in safety and decrease in crime. Ultimately, this may result in less injury, a decrease in fear and an increase in the perception of safety and associated positive health outcomes. The negative pathway arising from the ‘status quo’ or from the new town centre not being designed correctly indicates the potential for an increase in crime and violent social problems arising from factors such as high density housing, which results in poor quality housing and an increase in “ghetto” style pockets of housing. Multiple liquor outlets can also lead to an increase in alcohol-related crime issues such as drunkenness and property damage (Donnelly, Poynton, Weatherburn et al 2006), (Scribner, Mackinnon & Dwyer 1995), (Tatlow, Clapp and Hohman. 2000). There is also concern that because the town centre does not currently have entertainment after hours for its youth, they leave the suburb by hitch hiking or walking to the city centres and these modes of transport are potentially unsafe and can cause injury.

Aspects of the current design of Flaxmere are believed to contribute to crime levels by providing opportunities for antisocial or criminal behavior, and having low visibility and limited public surveillance. For instance, the currently enclosed Flaxmere walkway provides little opportunity for surveillance and increases opportunities for antisocial behaviour (Hastings District Council 2007a). Similarly, the skate bowl is isolated from other activities and may provide opportunities for crime or anti-social behaviour. The shopping centre faces inward, with poor passive surveillance at the rear (Hastings District Council 2007a).

These examples are demonstrated in the negative pathways which link the lack of passive surveillance with an increase in crime, fear, injury, and a decrease in perception of safety and physical activity. This leads to negative health and wellbeing outcomes.
Stakeholders made the following comments about the current situation and their safety:

- *Not nice to live in the town centre at the moment – grotty, small, scary*
- *Flaxmere Park- unsafe both day and night*
- *Older people 60+ feel unsafe*

The proposed urban design upgrade intends to address these concerns by providing a safer environment which will in turn cause a reduction in injury, a decrease in fear and increase the perception of safety, as is outlined in the positive pathways.

Experience of and fear of crime impact on health by causing stress, sleeping difficulties, loss of appetite, depression, loss of confidence and increased use of coping methods that harm health, such as smoking or alcohol misuse (McCabe and Raine 1997). Again, this demonstrates the importance of promoting the positive pathways and reducing the impact of the negative ones.

Fear of crime and perception that you are less safe results from being affected by crime both directly and indirectly. Stakeholders at the Flaxmere appraisal workshops commented that they;

- *Felt unsafe because of gangs*
- *Walk through parks – but not at night*

Fear of crime can profoundly affect the quality of individuals’ lives by causing mental distress and social exclusion. It is not necessarily the result of previous victimisation and those most in fear of crime are not necessarily those most vulnerable (Hirschfield, 2003:2). An increased fear of crime and reduced perception of safety has flow-on effects, such as spending more time indoors away from social networks.

Compared with non-Māori, Māori are at greater risk of being both victims and perpetrators of crime. Māori are over-represented in crime statistics, particularly those relating to offending and incarceration. On average, Māori youth are arrested for less severe offences than non-Māori. Māori youth are more frequently referred by police to the Youth Court for minor offences, which results in more serious outcomes than if they
had been required to take part in family group conferences (Robson and Harris 2007). Young Māori men also had higher incarceration rates than young non-Māori men; in 2003. Two per cent of Māori men aged 20-29 years were in prison while only 0.3% of non-Māori men in the same age group were in prison (Robson et al 2007).

Alex Macmillan and Alistair Woodward commented on youth in urban planning in a recent article:

> As well as young cities we have substantial youth populations, who are often framed as a “problem” to urban wellbeing. The place of youth in adult public space becomes even more important when the youth of Aotearoa are often marginalized on the basis of ethnicity, culture and economic standing. Listening to the voice and needs of youth in the future development of urban public space may be vital to urban sustainability, particularly considering their future roles as citizens and guardians

A national survey of crime victims found young people and Māori, especially Māori women, were among those most at risk of victimization (Morris and Reilly 2003). Māori, young people and women were also among those most likely to be repeat victims of violent and other crimes. In the study, Māori participants also tended to be more worried about crime than New Zealand European participants. Risk of victimisation was related to sole parenthood, being unemployed or on a benefit, living in rented accommodation, living in socioeconomically deprived areas, and being of younger age (15-19 years) (Robson and Harris 2007).

Research indicates that Pacific people in general are often victims of crime and are concerned about their safety. The groups most likely to be repeat victims of assaults included Pacific peoples and those at both the lower and higher ends of the socio-economic spectrum (Morris and Reilly 2003).
Despite concerns about personal safety from crime, older New Zealanders are less likely to be victims of crime, including violent offending, than younger people (Ministry of Social Development 2005). Nonetheless, research shows that older people are concerned about their safety, which impacts particularly on their level of physical activity and degree of social inclusion. Research with older people in Portugal has suggested that neighbourhood safety is related to total physical activity, activity in leisure time, and sporting activities’ (Mota et al 2007). Older people’s perceptions of safety are also influenced by socioeconomic status of the neighbourhoods in which they live.

Drawing from the literature, there are a number of factors to consider when thinking about how to prevent or reduce crime and increase safety. In communities, these factors include sound urban planning, including making communities more accessible and considering the type and condition of the surrounding buildings.

**Crime prevention through urban planning**

As the number of people increase in an area, the perception of safety can be improved by applying Crime Prevention Through Environmental Design (CPTED) principles. Crime prevention through interventions that reduce fear, prevent situational crime and target criminal and anti-social behaviour has been shown to generate largely positive health impacts (Hirschfield 2003). Urban planning and redevelopment can affect community reputation and safety in a number of ways.

Clear and logical layout, safe movement and connections, well lit areas, quality environments, and walkable communities result in areas that are more accessible to the people who live in them. One of the causal pathways demonstrates that increased accessibility, leads to safe walking and cycling routes in and through the Flaxmere Town Centre and as a result, will lead to more people in the town centre. Associated with this will be an increased perception of safety and connectivity with others. It also results in a sense of ownership over the space, which leads to the development of a positive community identity.
People feel safer when areas are visible and well lit. Stakeholders commented that “More lighting on walkways was required and they would walk through parks but not at night.” Passageways and pathways can be built or modified to maximise visibility (Carter et al 2002). A systematic review of community lighting showed an overall reduction in crime of 20% in well-lit areas versus control areas, and that the financial savings from reduced crime greatly exceeded the costs of the improved lighting (Farrington and Walsh 2002).

More walkable communities often have greater levels of social connectedness which in turn enhances community reputation and self-perception (Leyden, 2003). People feel safe when they feel able to do what they normally would do, without concern about their own physical safety and the safety of others.

**Economic**

If planned correctly, the positive wellbeing pathways show that more people using the town centre has the potential to lead to promotion of economic growth and the creation of local jobs. Stakeholders discussed the positive aspects of bringing business to the Flaxmere town centre and the importance of including business people in the discussion. They wanted Flaxmere residents to work in partnership with industry. The stakeholders supported having Flaxmere as a “destination” e.g. as part of the “vineyard experience” seeing this as potentially increasing retail expenditure.

Conversely, poor planning can lead to a decrease in town’s vibrancy, a loss of income and reduced social contact. This in turn can lead to a decrease in the physical and mental wellbeing and a negative health outcome for a community.

The recognition of social adversity as a barrier to good health – unemployment and health for example are not compatible (Mason Durie 2003)

A further pathway highlights that more local jobs can also be created by having appropriate retail outlets, promoting a strong relationship between council and business,
creating an environment of a “good place to do business”, this in turn creating more local jobs. This has the potential to lead to more people using the town centre. The council recognises this and has recently employed an economic consultant to engage with the business community and to provide guidance to the Hastings District Council on how to increase the retail space within the Flaxmere urban town centre.

**Employment**

Levels of employment and economic growth, along with personal and household income and expenditure, are closely linked with people’s ability to secure a good quality of life for themselves and their families. This includes their ability to purchase adequate housing, health care and education (Jamieson 2007). Employment is related to an individual’s ability to participate in social activities and enjoy a sense of belonging in their community (Jamieson 2007).

Employment can also have negative impacts on health, depending on factors such as working conditions. Research has consistently documented that job insecurity has an impact on the psychological well-being of employees (Pelfrene et al 2003). In Flaxmere, many people are involved in seasonal work in local horticultural industries, which suggests that job insecurity is likely to be an issue in Flaxmere. There has been an increase in part-time and casual work in New Zealand, over the past 15 years, which has resulted in a lack of security, increased exposure to health and safety risks, less control over working hours, and little opportunity for training.

Unemployed people have higher levels of illness (as shown by use of health services and other indicators), including heart disease, mental ill health and associated lack of wellbeing. Unemployed people may suffer disturbances to their mental wellbeing including boredom and despondency, sense of lack of control, stress, anxiety, depression, psychological disturbance, negative effects on pre-existing mental symptoms, self-harm, and suicide (London Health Commission 2001). Unemployment contributes to increased
mortality (in all major cause categories) and the longer a person is unemployed the greater the chance they have of dying prematurely.

Unskilled and semi skilled adults, young and disabled people are at greater risk of becoming unemployed. Unemployment also affects the families of those who are unemployed. Not surprisingly they are financially affected, but there is also increased risk of death and physical abuse among wives of unemployed men, and children and families can experience a ‘pathological impact’ (London Health Commission 2001). While unemployment contributes to ill health, ill health can also contribute to becoming unemployed in the first place.

Economic development can result in differential impacts on various groups in society. Urban growth projects, for example, often present opportunities for training and employment while under construction, and from ongoing use of facilities and stimulation of business. Immediate jobs created can be targeted at local unemployed. However, often the wealth generated (particularly GDP) from such expansion is not shared equally, the jobs created may be low-wage, insecure and unavailable to local unemployed people. The higher quality jobs may go to people from outside the local area (further increasing travel for these non-local workers, affecting their families and the communities they travel through). Providing opportunities for new jobs and employing local people wherever possible has the potential to generate significant wellbeing outcomes in Flaxmere.

**Increased retail and social services**

There are several pathways which can lead to an increase in retail and social services. According to the economic consultant and the stakeholders, the supermarket is the economic anchor for the town centre. For a town of 10,000 people the existing town centre has retail space to satisfy approximately 20% of the expected demand for retail. It is suggested that a figure of 50% may be more sustainable for the community to meet its day-to-day needs.
The pathways demonstrate that by having a correctly sized supermarket for the population of Flaxmere which is economically viable and connected to the town centre, is in a good location, has appropriate roading and parking and promotes competition (through lower prices), you would get an increase in other retail and social services. By having this increase the town centre becomes more vibrant with more places to sit, eat and socialise which increases social connectedness. This effect was also demonstrated in evidence given to the Environment Court in 2006, which showed that having a supermarket in a development increased the number of jobs for the retail area, increased the number of people using the retail area and there was an increase in people “cross shopping”.

While there is an increase in access to low cost fruit and vegetables which results in an improved dietary intake, the negative pathway shows that with the increase in retail growth there could be an opportunity for fast food outlets to become established, a high intake of energy-dense nutrient-poor food are commonly linked with fast food outlets.

There is convincing evidence that a high intake of energy-dense nutrient-poor foods contributes to weight gain and obesity' (WHO Geneva, 2003). Note that 'convincing' evidence is the highest category evidence: convincing, probable, possible, insufficient. There is also 'probable evidence that heavy marketing of fast food outlets contributes to weight gain and obesity' (WHO Geneva, 2003).

Internationally there is mixed evidence about the impact of geographical locations of fast food restaurants and obesity. As interest in this question develops, the quality of the studies improves, moving from cross sectional studies where there is mixed evidence, to prospective studies where there is more consistent results. A very large recent USA study (greater than 3 million 9th grade children studied from 1999-2007) showed that having a fast food restaurant within a tenth of a mile of a school was associated with eating 30-100 calories more and at least a 5.2 percent increase in obesity rates for children (Currie J, Della Vigna S, Meroetti E, et al. 2009).
The negative pathway does warn that the supermarket could draw shoppers away from existing shops and therefore be a threat to the existing retailers. This could cause the town centre to be less vibrant and the consequences of a less vibrant town centre.

Some of the stakeholders felt that currently there was a lack of services in the town centre and that the existing supermarket was too expensive. This causes a financial impact on the residents and contributes to negative wellbeing. At present there is no public seating areas and the ability to socialise within the town centre is limited. The stakeholders commented:

*Flaxmere people can’t use the facilities – too expensive*

*Need a sit down area to eat*

*Should have an area- Café*

*Social interaction setting – proven economic benefit*

**Limitations**

This HIA was carried out over an extended timeframe and there was approximately one year between the literature review and scoping exercise, and the appraisal workshops being undertaken. This meant that some of the earlier data that was gathered had to be updated to reflect the current situation.

Also, during this time the Village shopping centre changed ownership, and every attempt has been made to bring the new owners up-to-date with the proposed developments.

**Recommendations**

The following recommendations are drawn from this Health Impact Assessment:

*That the Hastings District Council should proceed with implementing the Flaxmere Town Centre Urban Design Framework.* Incorporating the principles of Quality Urban Design in the Flaxmere town centre will help to create a ‘sense of place’ for a community which will be intrinsically connected to community health and wellbeing:
That the Hastings District Council ensures ‘sense of place’ and connectedness issues are addresses within the redesign of Flaxmere. Stakeholders specifically requested the Council explore opportunities for linking the town strongly with the vineyard experience, promoting Te Aranga Marae and developing holiday accommodation in the area. Physical links via cycleways and/or roading, and promotion of Flaxmere as a hub for cultural activities offer substantial opportunities.

That the Hastings District Council incorporates the concept of the Te Aranga Maori Cultural Landscape Design Strategy and other local initiatives into the Flaxmere Town Centre Urban Design Framework. The Te Aranga Māori Cultural Landscape Design Strategy provides a practical means by which iwi and hapu, along with their designers and artists, may meaningfully engage with local, regional and central government to progressively transform the natural and built environment to better reflect tangata whenua histories, identity and aspirations.

Other local initiatives include sponsorship of public art on pavements, mobile barbeques, farmers markets, community gardens (using traditional Māori techniques), use of flax plantings in the landscape, views of Te Mata Peak, youth building and maintaining environments, and local stories reflected within the design. Such initiatives are examples of building a strong sense of place, and have the potential to generate substantial wellbeing outcomes.

That the Hastings District Council ensures quality building design of new buildings, especially housing, ensuring noise control standards are met to prevent sleep disturbance resulting from mixed use housing.

That the Hastings District Council incorporate the principles of Crime Prevention Through Environmental Design (CPTED) in Flaxmere Town Centre Urban Design Framework. As the number of people increase in an area, the perception of safety can improve if the environment is conducive to this. CPTED principles when reviewing designs has the potential to reduce fear, prevent situational crime and, target criminal and
anti-social behaviour. This in turn has the potential to generate large positive health and wellbeing impacts. Such an action supports the existing Central Business Districts’ Safety Plan.

That the Hasting District Council continues to explore the economic and employment opportunities for Flaxmere to facilitate the positive pathways which were identified during the HIA. Investigating the placement of a correctly sized supermarket for the population of Flaxmere is critical for future employment and economic development of other businesses. The development presents substantial opportunities for the creation of new jobs and increasing local employment, which will benefit social wellbeing. Any ability to maximise local jobs is strongly recommended. Levels of employment and economic growth, along with personal and household income and expenditure, are closely linked with people’s ability to secure a good quality of life for themselves and their families. This includes their ability to purchase adequate housing, health care and education. Employment is related to an individual’s ability to participate in social activities and enjoy a sense of belonging in their community. This concept was also demonstrated in evidence given to the Environment Court in 2006 which showed that having a supermarket in a development increased the number of jobs for the retail area and there was an increase in people “cross shopping”. This therefore led to more people being in the retail area.

That the Hastings District Council be aware of the potential for fast food restaurants and additional alcohol outlets to become established as a result of the Flaxmere Town Centre Urban Design Framework. Both have the potential to increase the risk of negative health and wellbeing outcomes for local residents especially as the plan seeks to attract additional people to the town centre. It was noted that controls available to Council are limited via current statutory processes. A Council-controlled authority having ownership of the new retail buildings in the town centre and therefore control over

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4 The term ‘cross shopping’ refers to people who go to the supermarket but also do additional shopping on the way to or from the supermarket.
tenants, may be one option worth exploring for Flaxmere if the residents want limits placed on the number of such outlets.

_That the Hastings District Council investigates increased public transport and active movement options for the community of Flaxmere._ Upgrading and construction of safe well-lit walking and cycling paths, plus the provision of affordable public transport (and awareness-raising campaigns regarding these) are recommended. These would link existing facilities and neighbourhoods together, and to the town centre. For example, ensuring safe walking access for the large housing complex for older people. Clear and logical layouts of connections are required to achieve potential benefits, and local residents are well placed to review suggested layouts. Public transport and active movement has the potential to increase accessibility to the town centre and presents multiple known positive effects on wellbeing.

_That the Hawke’s Bay District Health Board and the Hastings District Council along with other stakeholders undertake a benchmarking exercise of the current health and well-being indicators in Flaxmere and then monitor these indicators at regular intervals after the implementation of stage 1 of the Framework._ This will provide a baseline against which to measure the relative success of the changes made and will provide guidance as to what additional changes may be required at later stages.
REFERENCES


Public Health Advisory Committee (2008) Re-thinking urban environments and health. Wellington: Public Health Advisory Committee


Appendixes

Appendix One – Overview of the Flaxmere Village and Surrounding Land
Appendix Two – Four concept options

Option One
Option 2
Option 3
Appendix Three – Literature review

Health Impact Assessment of
Flaxmere Town Centre Urban Design Framework

Literature Review

May 2009

Funded by: Hawke’s Bay District Health Board
Partners: Hastings District Council, Hawke’s Bay District Health Board, Quigley and Watts Ltd

Prepared by:
Louise Thornley and Kate Marsh, Quigley and Watts Ltd
# Table of contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>63</td>
</tr>
<tr>
<td>1. Introduction</td>
<td>64</td>
</tr>
<tr>
<td>1.1 Methodology</td>
<td>65</td>
</tr>
<tr>
<td>1.1.1 Search strategy</td>
<td>65</td>
</tr>
<tr>
<td>1.2 Limitations of this review</td>
<td>66</td>
</tr>
<tr>
<td>1.3 Population groups of interest</td>
<td>67</td>
</tr>
<tr>
<td>1.3.1 Pacific families</td>
<td>67</td>
</tr>
<tr>
<td>1.3.2 Māori youth</td>
<td>68</td>
</tr>
<tr>
<td>1.3.3 Older people</td>
<td>68</td>
</tr>
<tr>
<td>2. Summary of evidence</td>
<td>70</td>
</tr>
<tr>
<td>2.1 Transport</td>
<td>70</td>
</tr>
<tr>
<td>2.1.1 Impacts of transport on health and wellbeing</td>
<td>70</td>
</tr>
<tr>
<td>2.1.2 Local evidence on transport</td>
<td>75</td>
</tr>
<tr>
<td>2.1.3 Evidence related to population groups</td>
<td>78</td>
</tr>
<tr>
<td>2.1.4 Strategies to reduce adverse effects</td>
<td>81</td>
</tr>
<tr>
<td>2.1.5 Summary of transport section</td>
<td>81</td>
</tr>
<tr>
<td>2.2 Economic development</td>
<td>82</td>
</tr>
<tr>
<td>2.2.1 Impacts of economic development on health and wellbeing</td>
<td>82</td>
</tr>
<tr>
<td>2.2.2 Local evidence on economic development</td>
<td>85</td>
</tr>
<tr>
<td>2.2.3 Evidence related to population groups</td>
<td>88</td>
</tr>
<tr>
<td>2.2.4 Strategies to reduce adverse effects</td>
<td>91</td>
</tr>
<tr>
<td>2.2.5 Summary of economic development section</td>
<td>92</td>
</tr>
<tr>
<td>2.3 Safety</td>
<td>93</td>
</tr>
<tr>
<td>2.3.1 Impacts of safety/crime on health and wellbeing</td>
<td>93</td>
</tr>
</tbody>
</table>
2.3.2 Local evidence on safety/crime ................................................................. 94
2.3.3 Evidence related to population groups ....................................................... 96
2.3.4 Strategies to reduce adverse effects .......................................................... 99
2.3.5 Summary of safety section ....................................................................... 100
2.4 Neighbourhood housing ............................................................................. 101
  2.4.1 Impacts of neighbourhood housing on health and wellbeing .................... 101
  2.4.2 Local evidence on neighbourhood housing .............................................. 105
  2.4.3 Evidence related to population groups .................................................... 108
  2.4.4 Strategies to reduce adverse effects ....................................................... 110
  2.4.5 Summary of neighbourhood housing section ......................................... 111
3. Conclusion ...................................................................................................... 111
References ........................................................................................................ 113
Executive Summary

This literature review is one component of a Health Impact Assessment (HIA) on the Flaxmere Town Centre Urban Design Framework. Flaxmere is a suburb of Hastings with approximately 10,000 residents. It has a relatively high proportion of Māori and Pacific peoples (Hastings District Council 2007a) and is in an urban area with significant health and deprivation issues. The literature review has primarily drawn on existing reviews of evidence from recent HIAs and key public health reports. The reviewers also searched for relevant new information from 2007-2008 to include material from more recent reviews.

The review found strong evidence that increased opportunities for residents to walk or cycle for transport is likely to positively affect population health and wellbeing. Evidence indicates that walkable urban environments are associated with greater use of public transport and increased physical activity levels. Although there are currently low levels of active forms of transport in Flaxmere, a third of Hawke’s Bay residents are open to the idea of walking or cycling to work.

Evidence in this review indicates employment, economic growth and income are closely linked with quality of life. Unemployment and poor working conditions are associated with adverse effects on health and wellbeing. The Flaxmere area has suffered economically due to its geographic isolation and high development costs but there is increasing emphasis on local economic development needs. Although Māori and Pacific peoples are over-represented in terms of low incomes and poor educational outcomes, cultural specific initiatives such as kura kaupapa are considered likely to improve future outcomes.

Evidence suggests both perceived and actual crime levels affect health and social exclusion. Flaxmere currently has a high media association with violent crime. Some aspects of the design of the urban environment may foster opportunities to commit crimes or anti-social behavior, such as low visibility and poor surveillance of public spaces. Compared with the general population, both Māori and Pacific peoples are at a higher risk of being victims and perpetrators of crime. While older people as a group have
relatively lower levels of crime victimisation, perceptions of crime levels and anxiety can contribute to social exclusion and poor mental health.

A range of benefits are associated with neighbourhood design and connectivity of streets. New Zealand research indicates that street connectivity levels are linked with the likelihood of walking or cycling to work in Auckland, which has positive implications for mental and physical health. There are also close links between accessibility of green spaces such as parks and levels of social cohesion and mental health.

In conclusion, there is evidence for links between each of the determinants and health, with especially strong evidence for the impact of the urban environment on opportunities to undertake physical activity for either transport or leisure. The review incorporates local material to highlight specific issues for Flaxmere and the Hawke’s Bay on the four determinants of health and wellbeing. Key issues from a public health perspective include the need to build a safer urban environment through the use of attractive and accessible green space, and the encouragement of greater physical activity through urban and streetscape design.

1. Introduction

This review is one component of a Health Impact Assessment (HIA) on the Flaxmere Town Centre Urban Design Framework. Hawke’s Bay District Health Board (DHB), Hastings District Council and Quigley and Watts Ltd. are working in partnership to undertake the HIA.

Flaxmere is a suburb of Hastings, but is geographically distinct. Its population is 9800 people and it has a relatively high proportion of Māori and Pacific peoples (Hastings District Council 2007a). Compared with Hastings district as a whole, Flaxmere has a high proportion of single parent families (e.g. the Kingsley-Chatham Census Area Unit in Flaxmere has 43% sole parent families, compared with 21% in Hastings). Flaxmere has a high deprivation index and is in an urban area with significant health issues.

The Flaxmere Town Centre Urban Design Framework project has three main objectives which would contribute to the following outcomes for the Flaxmere community:
• **A strong, prosperous and thriving economy** by looking at options for improving the performance of the Flaxmere town centre, the recreation precinct and the residential area, and the interrelationships between these.

• **Safe and secure communities** by addressing safety issues that have been raised by the community in the design improvements for the town centre and the way it relates to the residential areas that surround it. Safer public spaces promote greater community participation.

• **An environment that is appreciated, protected and sustained for future generations** by providing opportunities to improve the urban form to allow sustainability initiatives to be introduced, including better linkages and relationships between the town centre, recreation precincts and residential areas.

### 1.1 Methodology

This literature review focused on the linkages between health/wellbeing and four determinants of health selected in the scoping workshop for the HIA. The determinants were transport, economic development, safety and neighbourhood housing. The review also had a focus on three population groups - Pacific families, Māori youth and older people - in relation to urban development in Flaxmere. The following four research questions were examined for each determinant of health:

1) What are the impacts of the determinant on health and wellbeing in general?

2) What is the relevant local evidence on the determinant for Flaxmere or Hastings?

3) What is the evidence on the determinant in relation to Pacific families, Māori youth and older people?

4) What potential strategies could be used to reduce adverse effects on health and wellbeing?

#### 1.1.1 Search strategy

The literature review primarily drew on existing reviews of evidence from recent HIAs and key public health reports. In addition, the reviewers searched for relevant new information from 2007-2008 to ensure assessment of more recent reviews. Medline and PsycInfo electronic databases were searched for reviews using the following keywords.
Keywords:

a) health AND [impacts OR implications OR effects] AND transport
b) health AND [impacts OR implications OR effects] AND “street design”
c) health AND [impacts OR implications OR effects] AND crime
d) health AND [impacts OR implications OR effects] AND “local economic development”
e) health AND [impacts OR implications OR effects] AND “employment” OR “unemployment”

The Social Sciences Citation Index (Web of Knowledge), Index New Zealand and Google were used to search for New Zealand material on Pacific families and Māori youth in relation to the four determinants of health and wellbeing.

Where possible, Hawke’s Bay specific information was sought and included. This was provided by Hastings District Council and the Hawke’s Bay District Health Board. Both quantitative and qualitative evidence was included in the review, and the focus was on empirical evidence from well designed studies.

With regard to the determinant of neighbourhood housing, indoor housing environments were excluded from the review. Opinion pieces and descriptive work were also excluded.

Two members of the Quigley and Watts team developed the search strategy, carried out the searching, and analysed and summarized the information.

1.2 Limitations of this review

This was a rapid review, covering a very broad topic area within a short timeframe. While efforts have been made to search as widely and select as systematically as possible, this review only provides a ‘broad brush’ sketch of key findings in the literature, and should not be considered a comprehensive or in-depth review. Additional detail within many papers was not possible to capture in this report due to pragmatic limitations. Where the evidence is sparse, findings must be treated with caution.

A limitation of this review is the reliance on cross-sectional or observational studies. Compared with experimental research designs, these types of studies cannot provide evidence of causal relationships between determinants and health outcomes.
Another limitation is that much of the literature in this review is from overseas, although efforts were made to identify New Zealand information. Caution should be used in applying urban design findings across countries due to the varying urban contexts, development and residential patterns, and differential effects on equity and social segregation (Syme et al 2005).

1.3 Population groups of interest

1.3.1 Pacific families

Pacific peoples comprise a considerable and growing proportion of the Flaxmere community, although the Māori population group is larger. The proportion of Pacific residents in Flaxmere increased from 11.9% in the 1996 Census to 19.5% in the 2006 Census. This compares with 6.9% of the total New Zealand population who identified as Pacific in 2006 (Statistics New Zealand 2008). Flaxmere also has a higher proportion of Pacific peoples than Hastings as a whole, which in 2006 was 5.1%. A recent Education Review Office (ERO) report on Flaxmere College showed 10% of the school population was Cook Islands Māori and 7% was Samoan.

In New Zealand, Pacific people are much more likely to live in a household with extended family members than the general population (Poland et al 2007). In 2006 the Pacific ethnic group had the highest proportion of children (aged 0 to 14 years) of all major ethnic groups, at 37.7% (Statistics New Zealand 2008). The Pacific population group is also relatively youthful, with a lower median age than the overall population, and a much lower proportion of older people (Statistics New Zealand 2008). Pacific families often live in poorer socio-economic circumstances compared with the general population in New Zealand. Pacific people were significantly socio-economically disadvantaged by the reforms of the early nineties (Poland et al 2007). For example, in 1987–88, 23.4% of households that contained a Pacific adult were in poverty (compared to 13.8% of all households). By 1992–93, this gap had widened significantly and 50% of all households that contained a Pacific adult were in poverty compared to 27.9% of all households (Ministry of Social Development 2005).
1.3.2 Māori youth

In 2006 just over half (54.7%) of the Flaxmere population were Māori (all age groups). This is a much higher proportion than the national percentage of 14.6% (Statistics New Zealand 2006). Flaxmere also comprises a large proportion of young people (41.6% of the population was aged less than 20 years at the 2006 Census). Māori are also more likely to be socio-economically disadvantaged than the general population.

Flaxmere has a relatively high proportion of Māori youth. For instance, a 2006 Education Review Office (ERO) report on Flaxmere College showed 69% of the school population was Māori. Kimi Ora Primary School is the only primary school available in the West Flaxmere area, and the school roll of 94 students is made up entirely of Māori or Pacific children (ERO 2008). Many children and youth bus out of Flaxmere to go to schools in other areas.

New Zealand research shows that suicide and road accidents are the biggest killers of young people aged 15-24, and the mortality rate for young Māori is double that of non-Māori (Robson and Harris 2007). Young people aged 16-24 have the highest rates of mental illness (e.g. depression, anxiety and addictions) of any age group, and the youth unemployment rate is about three times higher than the overall unemployment rate.

Evidence suggests that home, school, community and natural environments play a significant role in maintaining youth wellbeing, and supporting young people to overcome setbacks. The whole community is likely to suffer as a result of young people feeling bored, alienated or lacking hope for the future. Young people with resources are likely to move away, taking their energy and skills away from the area, while disadvantaged young people may express their frustration and disillusionment through petty crime and risk taking behaviour. Therefore, ensuring all young people are valued, supported and provided with opportunities is likely to be advantageous to the whole community.

1.3.3 Older people

A lower proportion of older people live in Flaxmere than in New Zealand as a whole. Only 5.5% of the Flaxmere population are aged over 65 years, compared with 12.3% in New Zealand overall (Statistics New Zealand 2006).
Older people often live in their communities for a longer period of time than other groups, hence the quality of their neighbourhoods is considered especially important in terms of subjective wellbeing and sense of place. Older people are a diverse group, ranging from the ‘young old’ who may be fairly active and mobile to the ‘old old’ who may face significant challenges in their health and independence (Cao et al 2007).

As a group, older people tend to be disadvantaged by poor transport policies and urban design. In car-dominated urban environments, older people’s mobility may be restricted due to a lack of car access, and difficulties accessing public transport or active transport options. Gradual mobility decline as people age is a common experience, although there is diversity in the extent and timing of that decline. Contributors to mobility decline in older age include onset of physical or mental disability, side-effects of medications, affordability of travel for those on low retirement incomes, and poor design of transport infrastructure and operational arrangements (Metz 2003).
2. **Summary of evidence**

2.1 **Transport**

2.1.1 Impacts of transport on health and wellbeing

This section presents key findings on the impacts of transport on health and wellbeing, in terms of the following three transport-related determinants of health: opportunities for walking and cycling, access to public transport and car dependence.

**Opportunities for walking and cycling**

Transport has considerable potential effects on population health and wellbeing through facilitating or inhibiting opportunities to walk and cycle (Public Health Advisory Committee 2008). The links between physical inactivity and adverse health outcomes are well established in research worldwide. A strong body of evidence has confirmed associations between physical inactivity and a wide range of conditions including coronary heart disease, stroke, cancer, osteoporosis, fall-related injuries, type 2 diabetes, high blood pressure, and depression and anxiety (Public Health Advisory Committee 2008). Encouraging physical activity in daily routines, such as the journey to work, school or shops is consistent with the evidence of the health benefits of small amounts of moderate intensity daily exercise (Tobias and Roberts 2001). In New Zealand approximately 2600 premature deaths each year are attributed to insufficient physical activity (Ministry of Health 2004).

A recent systematic review on associations between the urban environment, obesity and physical inactivity concluded there is a correlation between features of the built environment and physical activity levels (Raine et al 2008). Studies consistently show that factors such as urban sprawl, low density and low land use mix are associated with sedentary behaviour and insufficient physical activity levels. Compared with car-oriented neighbourhoods, walkable neighbourhoods with grid street networks and public transport tend to have higher physical activity rates and public transport use. For instance, one
study used GIS to track individual activity levels and related neighbourhood characteristics to physical activity patterns (cited in Raine et al 2008). This study found a positive correlation between land-use mix, residential density, and intersection density with the number of minutes of moderate physical activity per day (37% of those in the most walkable neighbourhoods met the recommended physical activity level compared to only 18% in the low walkability areas).

Higher population and employment density is generally associated with higher rates of walking and cycling and public transport use. A large US survey found urban sprawl was associated with a significantly increased risk of walking less, weighing more and having higher blood pressure (Frank et al cited in Raine et al 2008). Key environmental barriers to physical activity include a lack of exercise facilities, footpaths, cycle lanes, accessible public parks and walking or cycling trails (Frank and Engelke, cited in Raine et al 2008). Research shows that having playgrounds or other play spaces within walking distance of homes is related to higher levels of childhood physical activity (Raine et al 2008).

In summary, the evidence indicates features of the built environment are correlated with increased walking and cycling, especially in terms of residential and employment density, land use mix, street network configuration and access to recreational facilities (Raine et al 2008). However, reviewers have noted there are limitations in the current evidence base (Raine et al 2008). In particular, most studies are cross-sectional so it is not possible to conclude that urban design directly causes increases in physical activity. Self-selection may also be a factor, where people who prefer to walk choose to live in denser neighbourhoods. Thus, there is a need for longitudinal studies that track participants over time.

**Access to public transport**

Research from both transport and public health sectors confirms a link between increased access to public transport and positive health effects (Public Health Advisory Committee 2008). Provision of frequent and accessible public transport is beneficial to health through reducing car dependence and emissions, and increasing opportunities for walking
or cycling. These effects are associated with health outcomes such as improving cardiovascular and respiratory health, increasing physical fitness levels and improving mental health (Public Health Advisory Committee 2008).

Estimates in New Zealand and the UK suggest that on average any single journey using public transport requires a 10 minute walk to the bus or train station (Gorman et al 2000). Similarly, a large United States study found that public transport users spent an average of 19 minutes each day walking to and from public transport, with almost a third achieving the recommended 30 minutes per day of exercise in this way (Besser and Dannenberg 2005). In addition, frequent and accessible public transport reduces the number of private vehicles on local roads which in turn increases desirability and perceived safety for all walkers and cyclists (Public Health Advisory Committee 2003). This is particularly true for short local trips.

Studies suggest it is especially important for employment to be located within walking distance of public transport. Research indicates if the walking distance between work and public transport is more than approximately 300 metres, the use of public transport reduces significantly (Public Health Advisory Committee 2008).

International research suggests a degree of commuter stress is associated with public transport use. Even so, relatively less stress is associated with faster, more reliable and less crowded services (Wener et al. 2003). And, in areas where congestion occurs, trips by public transport are often faster and less stressful than car journeys (Zimmerman 2005).

Car dependence

There is evidence that New Zealanders are increasingly reliant on private motor vehicles for transport. The total annual time spent driving has increased by 49% since 1989/90 (Public Health Advisory Committee 2008). Approximately 80% of commuters in New Zealand use a private car and most of the longer, single-occupant journeys involve driving from outlying suburbs (Parker 2005).
Travel patterns for children and youth in New Zealand suggest a reduction in walking and cycling over time, and a corresponding increase in car travel. Walking and cycling by children aged 5-14 years has reduced from an average of 2 hours and ten minutes per week in 1989/90, to just under an hour and twenty minutes per week in 2003-06. The amount of time spent in cars has increased in almost all age groups in the latest travel survey (Ministry of Transport 2007).

Injuries from car and other traffic crashes cause a substantial proportion of all hospitalisations and deaths internationally and in New Zealand. As this area is well documented it will not be covered here.

Journeys made by car, particularly short journeys, represent missed opportunities for active travel. A large study in Atlanta found a 6% increase in the risk of obesity for every additional hour spent in a car per day (Frank et al. 2004). People in New Zealand have identified the presence of heavy traffic as a barrier to physical activity (Sullivan 2003).

Road congestion is an increasing problem worldwide, particularly in urban areas. There is growing evidence that commuting has a negative effect on mental health through driver stress associated with congestion or driving in heavy traffic. Road congestion leads to frustration, with a perceived lack of control being a major factor in determining the level of stress (Hennessy and Wiesenthal 1997). Stress due to congestion has been shown to adversely affect work performance (Wener et al. 2003). Weak relationships have been found between urban form and aggressive driving and road rage. Reduced free-will movement of children due to increased traffic flows and lower perceived safety of the environment is known to impact on children’s mental and physical health (Frumkin 2001).

Noise is known to have an adverse effect on health, causing annoyance and sleep disturbance, both of which contribute to stress (Kjellstrom and Hill 2002). Studies have found that stop/start traffic, and vibration or low frequency noise, are the most annoying,
particularly early in the morning and late at night (Kjellstrom and Hill 2002). Socio-economic status is reported to influence exposure to noise, with people on higher incomes living away from busy roads. This unequal exposure to traffic noise contributes to inequalities in health.

The effects of vehicle emissions have implications for health. Poor air quality is associated with premature mortality, reduced cardiovascular function, increased heart failure, stroke, cancer and low birth weights. A strong body of international evidence has linked vehicle emissions to a greater risk of respiratory and cardiovascular ill health, especially in vulnerable populations such as children and older people. In New Zealand approximately 400 premature deaths annually are caused by air pollution from vehicle emissions (Ministry of Health 2004). Transport-related pollution is a particular issue in this country due to the amount of older, high polluting cars. Urban density and the organisation of the transport system determine to a large extent how much individuals drive. A wide spread of houses, jobs and shops (as in Flaxmere) and limited alternative modes of travel increases the need for car use which in turn increases air pollution.

Adverse health effects from vehicle emissions are associated with proximity to busy roads. Studies in Amsterdam have found that people living next to busy streets were exposed to 2-3 times more particulate matter and other harmful emissions compared to those who lived near streets with less traffic (Public Health Advisory Committee 2008). These effects were present both inside and outside buildings. A recent international review found people living within 200 metres of a major highway (dual carriageway or wider) have an elevated risk of developing asthma and reduced lung function in children (Public Health Advisory Committee 2008).

Finally, there are links between car dependence and lack of social cohesion. Several features of urban sprawl have been linked to a weakened sense of community, including leapfrog development, low density and car dominance (Public Health Advisory Committee 2008). Work in the United States by Robert Putnam suggested about 10% of the overall loss in social capital was due to suburbanisation, commuting and sprawl
Putnam also found overall civic involvement in a community fell as average commuting time rose. A related health implication is the effect of community severance when roads bisect communities and reduce social cohesion. A New Zealand report has identified severance caused by major roads as a barrier to accessing community facilities (Public Health Advisory Committee 2003). On the positive side, transport arrangements can also promote social connectedness through creating opportunities for people to meet informally.

**Streetscape design and connectivity**

Research suggests that design issues such as street connectivity and the presence of parks and other green spaces are important factors in encouraging walking and cycling (Public Health Advisory Committee 2008). These issues are covered in more detail in the section of this literature review on neighbourhood housing (streetscape design).

### 2.1.2 Local evidence on transport

Flaxmere town centre is formed by a series of cul-de-sacs with little connectivity or linkages through the area (Hastings District Council 2007a). The town centre currently contains no residential space and the limited mix of activity is mostly restricted to weekdays.

**Walking and cycling**

The draft urban design framework for Flaxmere states there is a limited pedestrian network between the town centre and surrounding residential areas. Nonetheless, the existence of several informal walking paths across reserves in Flaxmere suggests that walking is an important mode of travel in the area (Hastings District Council 2007a). The local schools, library and leisure facilities are well located for pedestrian access. Although the roads are wide enough for cycling, it does not appear to be a common mode of transport (Hastings District Council 2007a).

A recent survey of physical activity levels in Hawke’s Bay included a proportion of Flaxmere residents in the sample (10%) but did not report any findings specific to Flaxmere (Cinta Research 2008). Although the survey found 63% of Hawke’s Bay
respondents had been regularly physically active for over 6 months, only 54% stated they were happy with their current fitness and 31% said they were not regularly active. The least physically active groups included women, beneficiaries/unemployed people and those with an annual income less than $10,000 per year. The survey found low levels of walking and cycling for transport in the Hawke’s Bay region, with 8% of respondents walking to work most days and only 2% cycling. Nonetheless, a third of respondents (34%) said they were open to the idea of walking or cycling to work once a week (Cinta Research 2008).

The survey also uncovered a low level of awareness of walking and cycling facilities or groups in the region. For instance, only 36% of Hawke’s Bay respondents were aware of local walking groups and only 38% were aware of a cycling path in their area (Cinta Research 2008). From these figures it is not possible to gauge whether this is a problem of low awareness or a lack of provision of walking or cycling groups/facilities.

Use of public transport

There is an extremely low rate of public bus use in Flaxmere, and there is limited public transport within Flaxmere to get to the town centre as well as between Flaxmere and Hastings (just one bus service). In 2006 more than 60% of residents in Flaxmere were either a driver or passenger in a car to get to work. Fifty three per cent drove a private vehicle to work and 6.3% drove a company vehicle, 10.6% were a passenger in a private or company vehicle, and only 0.6% travelled by bus (Statistics New Zealand 2006). Ten per cent of Flaxmere residents either did not work that day, or worked from home.

A recent survey found that 80% of respondents from the Hastings District (including but not specific to Flaxmere) said they did not have a public transport alternative for the journey they made most often (New Zealand Business Council for Sustainable Development 2008). This figure was higher than the national figure of 63% and was the second highest in New Zealand. Only 12% said they did have a public transport alternative, compared with 28% of respondents across New
Zealand. However, the survey authors noted that care should be taken when examining the data from smaller subsamples, such as the local area data.

*Household access to a car*

Flaxmere households have a slightly higher proportion of households without car access compared to Hastings. In Flaxmere, 8.4% of households had no access to a car in 2006, compared with 7% of households in Hastings as a whole. In Flaxmere 35.3% had access to one car which is slightly lower than the national figure of 36.3% (Napier City Council 2007).

The draft urban design framework for Flaxmere notes that it is difficult to live in Flaxmere without a car due to the lack of shopping and employment infrastructure in the town centre (Hastings District Council 2007a). The shopping centre tends to be dominated by vehicles.

*Vehicle emissions and traffic volumes*

In Flaxmere congestion is not a major problem but there are issues with wide suburban roads and traffic speed affecting pedestrian safety. These factors may present barriers to walking and cycling, and contribute to stress and injuries. The prevalence of roundabouts may also be an issue in terms of discouraging people from walking or cycling. This is particularly the case with the roundabouts on the Expressway which has the effect of dividing Flaxmere from the wider Hastings urban area.

There are relatively high rates of asthma in Flaxmere (McElnay 2005), so it could be anticipated that residents will be more vulnerable to the adverse health effects of vehicle emissions. However, it is likely that the major contribution to pollution in Flaxmere is from open fires rather than vehicles (Hastings District Council, personal communication, July 2008).

In comparison with the Hastings CBD, the traffic counts in Flaxmere are relatively low. However, the Infill Residential Survey (Opus International Consultants 2007) found Flaxmere residents rated high traffic volumes and associated noise as the
most frequently raised reason for not liking their neighbourhood. This suggests that although there may be a relatively low level of traffic, there may be other features of the environment that contribute to a perception of high traffic volumes and issues such as noise or safety concerns (e.g. wide streets and a lack of footpaths or pedestrian crossings).

2.1.3 Evidence related to population groups

*Pacific families*

Pacific people are over represented among those on lower incomes, especially Pacific families. People who are wealthier are more able to choose where they live, such as away from busy roads, and to have access to a car. The adverse effects of transport and urban design are therefore more concentrated in deprived areas (Gorman et al 2000, Berkman and Kawachi 2000). Poorer people, including some Pacific people, are more likely to live near transport corridors with higher exposure to emissions and road traffic injuries, and disruption of community networks. Rates of respiratory conditions tend to be higher so there are greater potential adverse effects from vehicle emissions. Groups with lower access to cars are more affected by negative implications of transport policies. Poor public transport services can lead to social isolation and reduced opportunities for employment and education for these groups (London’s Health Commission 2001).

Road traffic injuries disproportionately affect Pacific people, as well as children, people at socioeconomic disadvantage, and pedestrians, motorcyclists and cyclists. The risk of being hospitalised as a result of a road crash is almost three times higher for Pacific drivers compared with the general population (Kjellstrom and Hill 2002). Pacific people are, on average, slightly less active than other ethnic groups in New Zealand (SPARC 2007).

*Māori youth*

Māori young people are more likely to be adversely affected by poor urban design and transport policies due to being more likely to live in deprived areas and having lower access to transport. Māori, and children in general, have higher rates of road traffic
juries than the general population. For Māori the risk of hospitalisation due to a road crash is three times higher than the overall population (Kjellstrom and Hill 2002). Motor vehicle crashes remain the leading cause of death for all 16-24 year olds, including Māori youth (Te Puni Kokiri 2006).

Māori young people have higher levels of physical activity than non-Māori youth. New Zealand research indicates that although Māori and European New Zealanders have similar overall levels of physical activity, among young people, Māori are the most physically active group (SPARC 2007).

*Older people*

New Zealand research with older people, including older Māori, confirms that good access to public transport is important in maintaining mobility, independence and social contact (Ministry of Health 1997). Other New Zealand research has indicated that geographic isolation and lack of public transport limit older people’s ability to be involved in social life, confining many people to activities in their own, or at most, an adjacent suburb (Dwyer et al 2000).

As the prevalence of disability increases with age, many older people experience a disability or more than one disability. In New Zealand 54% of people aged over 65 had a disability in 2001 (Human Rights Commission 2005). The following two key messages arose from a Human Rights Commission Inquiry into Accessible Public Land Transport.

- Significant numbers of disabled people in New Zealand have acute and ongoing difficulties accessing public transport and the problem is anticipated to worsen with the ageing population.
- However, there is also growing public acceptance that improving public transport access will benefit both disabled and non-disabled people (Human Rights Commission 2005).

In line with the research on general populations, an international review found that older people living in mixed use and compact communities are more likely to walk and to use
public transport (Cao et al 2007). Mixed land use, walkable environments, easy access to local shops, services and recreational facilities, access to green space, and neighbourhood safety and attractiveness have all been positively associated with older people’s physical activity (Cao et al 2007).

Many older people are physically active, and surprisingly, are over-represented among pedestrians and cyclists. Walking accounts for a higher proportion of trips by older New Zealanders than for the total population aged 15 years and over (Wilton and Davey 2007). A 1991 OECD survey found that 33% of journeys made by New Zealanders aged 70 years and over were walking journeys, compared with only 16% for adults aged between 25 and 59 years (Frank et al 2003).

Yet despite a higher likelihood of walking, general levels of physical activity tend to decline with age. A range of barriers to older people’s physical activity have been identified in overseas research, mostly from the US, Canada, Europe and Australia. These include actual and perceived safety (e.g. unsafe street crossings, fear of crime), accessibility, ageism and isolation. In New Zealand, people aged over 70 years comprised 26% of pedestrian casualty figures in the period 1999-2003 (Wilton and Davey 2007).

Focus groups with older New Zealanders have raised several concerns connected to transport-related injuries and safety, including concerns about the poor physical condition of footpaths, unsafe road crossings, shared footpath use, and personal safety (Wilton and Davey 2007). The most pressing issues were inadequacy of the pedestrian infrastructure and problems with crossing roads. New Zealand research with older people has emphasised that promotion of walking and alternative forms of transport such as motor scooters requires attention to safety (Wilton and Davey 2007).

Older people are vulnerable to adverse health effects associated with car dependence and the presence of heavy traffic. Older people are especially susceptible to the effects of vehicle emissions on respiratory and cardiovascular health. For instance, exposure to fine
particulates can trigger heart attacks (Ewing and Kreutzer 2006). Community severance has the greatest impact on those with limited mobility including older people and people with disabilities.

2.1.4 Strategies to reduce adverse effects
Drawing on the literature, strategies to minimise the potentially harmful effects of transport on health include the following.

- Greater integration of transport and land use planning is important for improving health and social outcomes.
- Transport policy can play a key role in combating sedentary lifestyles by reducing reliance on cars and increasing walking and cycling. Quality, safety and width of roads, footpaths and cycleways affects ease and frequency of use, particularly by older people, people with children, and people with disabilities. A high level of street connectivity is also important.
- Strategies to encourage walking and cycling, and discourage use of cars, include charging for car parking or car use, traffic calming, road space reallocation, cycle paths, travel behavior change programmes, public transport improvements and integrated urban transport strategies.
- Higher density of development reduces trip lengths, increases mode choice and decreases the need for vehicle ownership.
- Mixed land use is associated with shorter trips and a shift in mode from cars to walking, cycling and public transport. This is due to shorter distances and encouragement of combining trips, public transport and car sharing.
- Urban infill and redevelopment is associated with reduced vehicle use and emissions compared with greenfield/edge of town development.

2.1.5 Summary of transport section
In summary, transport is an important determinant of health and wellbeing. There is strong evidence that increased opportunities for residents to walk or cycle for transport will make a positive contribution to health. Evidence shows that walkable urban
environments are associated with greater use of public transport and increased physical activity levels. In Flaxmere, there are currently low levels of active forms of transport and public transport use. There is also a slightly higher rate of households without access to a car. Despite low levels of walking and cycling, approximately a third of Hawke’s Bay residents are open to the idea of walking or cycling to work. Access to public transport is especially important for older people and people with disabilities. The next section discusses economic development as a determinant of health.

2.2 Economic development

This section presents key findings on the impacts that economic development has on health and wellbeing in relation to the following local-level determinants of health: employment, work/life balance, educational opportunities, access and mobility, and noise related health impacts.

2.2.1 Impacts of economic development on health and wellbeing

Local economic development impacts on the extent to which people feel connected to one another and also the extent to which they feel connected to their city or town. The World Bank (2008) states that the ‘purpose of local economic development (LED) is to build up the economic capacity of a local area to improve its economic future and the quality of life for all’. LED is a process by which public, business and nongovernmental sector partners work collectively to create better conditions for economic growth and employment generation (World Bank 2008).

Economic development can result in differential impacts for various groups in society. Urban growth projects, for example, often present opportunities for training and employment while under construction, and from ongoing use of facilities and stimulation of business. Thus, the immediate jobs can be targeted at local unemployed. However, often the wealth generated (particularly GDP) from such expansion is not shared equally; the jobs created may be low-wage, insecure and unavailable to local unemployed people. The higher quality jobs may go to people from outside the local area (further increasing travel for these non-local workers, affecting their families and the communities they travel through).
Employment and unemployment

Levels of employment and economic growth, along with personal and household income and expenditure, are closely linked with people’s ability to secure a good quality of life for themselves and their families. This includes their ability to purchase adequate housing, health care and education (Jamieson 2007). Employment is related to an individual’s ability to participate in social activities and enjoy a sense of belonging in their community (Jamieson 2007).

On the other hand, employment can also have negative impacts on health depending on factors such as working conditions. Research has consistently documented that job insecurity has an impact on the psychological well-being of employees (Pelfrene et al 2003). In Flaxmere many people are involved in seasonal work in local horticultural industries, which suggests job insecurity is an issue in the Flaxmere context. There has been an increase in part-time and casual work in New Zealand over the past 15 years which has resulted in a lack of security, increased exposure to health and safety risks, less control over working hours, and little opportunity for training (Public Health Advisory Committee 2004).

Significant effects of job insecurity on physiological parameters, such as increased blood pressure levels, have been found in a number of longitudinal studies although in other cases the effects were inconsistent or absent (Pelfrene et al 2003). Lack of access to childcare may be a barrier to adult employment, reduce household income, increase the risk of social isolation and reduce access to support (Zoritch and Roberts 1998).

Unemployed people have higher levels of illness (as shown by use of health services as well as other indicators), including heart disease, mental ill health and associated poor wellbeing. Unemployed people may suffer disturbances to their mental wellbeing such as boredom and despondency, sense of lack of control, stress, anxiety, depression, psychological disturbance, negative effects on pre-existing mental symptoms, self-harm, and suicide (London Health Commission 2001). Unemployment contributes to increased mortality (in all major cause categories) and the longer a person is unemployed the greater the chance they have of dying prematurely.

Unskilled and semi skilled adults, young and disabled people are at greater risk of becoming unemployed. Unemployment also affects the families of those who are
unemployed. Not surprisingly they are financially affected but there is excess risk of death and physical abuse among wives of unemployed men, and children and families can experience a ‘pathological impact’ (London Health Commission 2001). While unemployment contributes to ill health, ill health can also contribute to becoming unemployed in the first place (London Health Commission 2001).

**Work/life balance**

Work/life balance is about people having a good combination of participation in paid work and other aspects of their lives. It refers to the interaction between time devoted to paid work and time devoted to other activities, including family, community activities, leisure and personal fulfilment (Jamieson 2007). Work/life balance impacts on perceptions of personal wellbeing and quality of life. The Quality of Life survey showed that when comparing work/life balance with the overall quality of life, those who rated their quality of life extremely good were significantly more likely to rate their work/life balance positively (Jamieson 2007).

**Educational opportunities**

Economic development can determine what educational opportunities are available to the local population and how difficult it is for them to access those opportunities. Education is a strong determinant of health and is related to other determinants. For instance, education can determine the income a person can earn later in life which in turn influences quality of life for individuals and families. Day care, pre-school education and childcare for school age children can promote development, and physical and mental health. Children with a low level of educational attainment are more likely to suffer from poor adult health in later life (Bynner and Parsons, 1997; Zoritch and Roberts 1998).

**Access and mobility**

Access to services and facilities is (largely) determined by the urban environment and is closely linked to economic development. Good access to services requires direct and safe routes, transport options and visible signposts. Access to services is one of the key factors contributing to social connectedness and health (Kawachi et al 2000). This involves access to social services (such as education, social support, housing and health services);
commercial services (such as shops, banks, and professional services); infrastructure services (such as transport); and local authority services (such as libraries). Services are often of lesser quality and may be more difficult to access in more deprived areas (Galea et al 2005). Barriers to access are sometimes institutional and ethnicity or age based, and can also be geographic or design related. Access to services affects neighbourhood and community functioning and resilience, and contributes to “social capital” (Dannenberg 2003).

Noise related health impacts

Economic development can contribute to increased noise where construction is occurring and in industrial areas after construction has finished. Noise related health impacts are unlikely to lead to hearing loss but can contribute to high blood pressure, minor psychiatric illness, loss of sleep, increased communication difficulties, and a possible interference with concentration. High noise levels can also impair the performance and educational attainment of children (Public Health Advisory Committee 2003).

2.2.2 Local evidence on economic development

Flaxmere has undergone a number of changes over the past few decades, many of which were related to a lack of economic development. In the 1970s, the economic development that took place (planned commercial, recreational and social facilities) in Flaxmere was developed much slower than was needed because the costs of development exceeded revenue (Johnson 2005). As the population grew throughout the 70s and more young people moved to the suburb, there was increased concern that Flaxmere did not have the facilities (e.g. kindergartens, shopping centres, recreational activities) to support them. In 1990, the new Hastings District Council looked at ways of developing Flaxmere. Six councillors formed a group designed to look at local issues, liaise with the Community Trust, advocate for a new high school, and promote ‘beautification schemes’ within Flaxmere (Johnson 2005). However, it was not until the beginning of the 21st Century that Flaxmere residents saw the opening of Te Aranga Marae (considered the first truly multicultural marae in New Zealand); Te Kura Kaupapa Māori O Ngati Kahungunu Ki Heretaunga (the Māori language school) and the Eastern Institute of Technology (Johnson 2005).
As the layout of Flaxmere is similar to a ‘cul-de-sac’ in its isolation from the regional flow of activity, there is a lack of economic activity generated by passing traffic. This is reflected in a survey of grocery shoppers’ views of Flaxmere and Havelock North. This survey showed that most Flaxmere residents (70%) tended to shop in Flaxmere while 88% of Hastings City respondents and no Havelock North respondents ‘never’ shopped in Flaxmere (Hastings District Council 2007b). Flaxmere’s geographical isolation was the main reason Flaxmere respondents chose to shop in Flaxmere and also the main reason other respondents did not shop there. Almost half of Flaxmere respondents wanted to see more shops available in Flaxmere (Hastings District Council 2007b). Of the Flaxmere respondents who chose not to shop in Flaxmere, 63% did so due to its negative connotations (“scary”, “unclean”, “unsafe for children”, and “depressing”).

Flaxmere’s town centre provides a few jobs but most employees in Flaxmere are employed locally in surrounding agricultural and industrial businesses, with a smaller percentage commuting into Hastings or Napier for work (Hastings District Council 2007b). In Flaxmere, at the 2006 Census, 3582 people over the age of 15 were employed. Unskilled occupations dominated the Flaxmere employment sector with almost one third (31%) of Flaxmere residents employed as labourers, and 10% employed as machine operators and drivers, and as technicians and trades workers. The industries dominating the employment sector were manufacturing (22%), and agriculture, forestry and fishing (12%).

The concentration of many Flaxmere residents in unskilled employment is reflected in the median household income in Flaxmere which was $40,200 annually, slightly below the regional median of $44,200 and well below the national figure of $51,400 (Hastings District Council 2007a). There has been a marked reduction in the numbers on the unemployment benefit which have reduced from 248 in March 2003 to 7 in March 2008 (Ministry of Social Development 2008a). This is consistent with reductions in the number of people receiving the unemployment benefit across other wards in Hawkes Bay/Gisborne (Ministry of Social Development 2008a), although the low number in March may reflect participation in seasonal work such as apple picking. The numbers of working-aged main benefit recipients (aged 18–64 years, includes all benefit types) has
also fallen from 1565 in March 2003 to 1248 in March 2008 (Ministry of Social Development 2008a).

The closure of the Hawke’s Bay Farmers’ Meat Co-operative at Whakatu in 1986 had a huge impact on the local economy as it resulted in the loss of approximately 2000 jobs (Keefe-Ormsby 2008). But it was more than loss of income; it was also loss of social networks as a small community had developed around the Whakatu meat works (known as Whakatu). By the 1970s, Whakatu had flourished into a thriving community with a shop, butchery, garage and community hall (Keefe-Ormsby 2008). Many of the residents were employed at Whakatu as were residents from the various marae communities. Working at Whakatu was a family tradition and children were often employed alongside their parents. As a result, the closure of Whakatu had a major impact on the community, particularly in relation to loss of camaraderie, economic hardship, and separation of whanau (Keefe-Ormsby, 2008). For some it provided a welcome change of occupation but for many others it represented a huge loss.

The outcomes of the freezing works closure, both positive and negative, are still felt today. A positive that came out of the closure was that many of the younger Whakatu workers attended Te Reo courses to learn to speak Māori language. However, the economic impacts were major. Many Whakatu workers found that other freezing works did not pay their employees as well as Whakatu and could not afford to pay for healthcare, for example (Keefe-Ormsby 2008). Research undertaken by Keefe-Ormsby (2008), more than ten years after the 1986 closure, found a perception among participants that Hawke’s Bay still had not fully recovered from the closure of Whakatu, the impact of which was compounded by a later closure of another freezing works at Tomoana. Longer term repercussions were still felt by some, with participants reporting that older Māori men were especially vulnerable to depression. Women adjusted more quickly to the closure than men and older men were hit the hardest.

In terms of education, at the 2001 Census 15.8% of people aged 15 years and over in Flaxmere East had a post-school qualification, compared with 27.9 % for Hastings District and 32.2% for New Zealand as a whole (Stats NZ, 2003). Flaxmere’s one secondary school, Flaxmere College, has the lowest decile rating of 1 (Education Review Office 2006). However, Hawke’s Bay in general (not Flaxmere specifically) has the
country's highest participation rate in early childhood education and 400 young people across the region are taking part in Modern Apprenticeships.

Although the main Eastern Institute of Technology (EIT) campus is located in Taradale, there is a small EIT office that holds some courses in the Flaxmere town centre. However, recent workshops run by EIT suggested that problems with accessibility to the Taradale campus may be a barrier to tertiary education for Flaxmere residents (Hastings District Council, personal communication, July 2008).

The Ikaroa Māori Women’s Welfare League conducted research in Flaxmere in 2006 to identify health needs and barriers and solutions to health issues (Ikaroa Māori Women’s Welfare League 2006). The report concluded that low socioeconomic status of the population was a key contributor to health status, outcomes and service use. It confirmed high levels of poverty with a large segment of Māori families earning less than $24,000 annually. It also found poor living conditions for a portion of the respondents, with examples of extended families of 8 or more people living on a single property. Some families had people sleeping on the lounge floor, and inside vehicles, car sheds and caravans (Ikaroa Māori Women’s Welfare League 2006).

2.2.3 Evidence related to population groups

Pacific families

As there has been little research undertaken specifically on Pacific families, this section includes more general national data on Pacific peoples. In addition, employment and income directly affects the families of those who are working and not just those earning the income.

The national data indicates that the employment rate, labour force participation and annual median income of Pacific people are lower than in the general population. At the 2006 Census, 65% of adults (people aged 15 years and over) of Pacific ethnicity were in the labour force. Pacific men tended to be employed as labourers (23%), machinery operators and drivers (21%) or technicians and trades workers (20%). The occupations of women of Pacific ethnicity showed greater diversity than those of men; women were likely to be employed as clerical and administrative workers (19%) or labourers (19%) or as professionals (15%) or community and personal service workers (15%). The
percentage of unemployed Pacific people has fallen from 16% in 2001 to 11% in 2006 (Statistics New Zealand 2008).

The median annual individual income for adults (people aged 15 years and over) of Pacific ethnicity was $20,500 in 2006, which was lower than the median annual income of $24,400 for New Zealand overall (Statistics New Zealand 2008). The effect of this income gap is exacerbated by the fact that Pacific people tend to have larger families so have more children to support on a lower income. Unsurprisingly then, research indicates that Pacific people are also more likely to have relatively less access to higher education, home ownership, cars and telephones (Poland et al 2007).

Māori youth

As a group Māori youth tend to have worse educational outcomes than non-Māori youth. This can be seen in not only educational qualifications but also the age at which Māori youth leave school. In 2005 Māori students in New Zealand were twice as likely as non-Māori students to have left school by age 16, three times more likely to be suspended from school, and more than twice as likely to be granted an early-leaving exemption (Robson and Harris 2007). In 2005 49% of Māori secondary school students left school without an NCEA qualification compared to 22% of non-Māori (Robson and Harris 2007).

The generic school system often contributes to inequitable educational attainment for Māori youth. ‘[F]ailure of the school system to perform equitably for Māori transfers the cost of attaining an education onto Māori. The lifetime cost of obtaining an education is thus disproportionately higher on average for Māori’ (Robson and Harris 2007:22). The generic school system is also not set up to cater to the cultural needs of Māori youth. Kohanga reo, kura kaupapa, wharekura and wananga have been established in recent years, as have programmes such as Te Kotahitanga, to cater ‘for Māori by Māori’. This has led to greater engagement and participation in education by Māori at all levels (Robson and Harris 2007).

Nationally, Māori youth are disproportionately represented amongst the unemployed and amongst those working in the service industries. In 2007, 21.4% of Māori youth were unemployed compared with 11.4% Pakeha youth (Robson and Harris 2007). In addition,
Māori are most likely to be employed in service industries (16.7%) and as plant/machine operators and assemblers (16.4%). The concentration of Māori in these typically low paid occupations reflects a lower median annual income for Māori adults (those aged 15 years and over); in 2006 this was only $20,900 compared with $24,400 for the total population (Robson and Harris 2007).

Although unemployment rates have declined in New Zealand overall, youth unemployment remains a concern. In 2007 over half of 15-19 year olds were in the labour market but 14.1% of these young people were unemployed. Youth unemployment for Māori and Pacific young people is higher than for New Zealand European youth. The youth unemployment rate is nearly four times higher than the annual average unemployment rate for all persons (Department of Labour 2007).

Research into the health consequences of youth unemployment has found it is associated with increased rates of mental illness and emotional problems, poorer health and health behaviour (e.g. increased alcohol consumption, tobacco consumption and illicit drug use), higher mortality rates especially due to suicides and accidents, and social consequences such as criminality, alienation and future exclusion from employment (Hammarstrom 1994).

In general, having a job is better for health than being unemployed. But for young people in the workforce, work conditions, management styles and social relationships in the workplace can impact on health and wellbeing (Wilkinson and Marmot 2003). Work can enhance wellbeing by providing income, status/self-esteem, opportunities for skill development and opportunities to make friends. However, studies show that health suffers when people work in stressful conditions, have little opportunity to use their skills and low decision-making authority (Wilkinson & Marmot, 2003). Young people are more likely than those over 24 years to work in low paid, low status, casualised jobs, with poor working conditions.

*Older people*

Economic development affects older people particularly in relation to access to shops, services, recreation facilities and green space. The World Health Organization’s 2007 consultation with older people highlighted a range of access issues, in particular concerns
about access to health services, building and facilities, recreation facilities and conveniently located, accessible toilets’ (World Health Organization 2007). Access to affordable healthy food seemed to be a particular issue for older people who often do not drive or own a car.

Much of the literature focuses on how access influences physical activity and mobility in older people. A literature review on older people found that the presence of a mall was associated with higher walking levels, outdoor green space was linked with higher physical activity levels in older people, and walkable green spaces were associated with higher longevity of older people as were parks and tree lined streets near the older person’s residence (Cao et al 2007).

2.2.4 Strategies to reduce adverse effects

The literature highlights a number of factors that appear to improve health and wellbeing in relation to economic development. These include levels of community support, increased education levels, upskilling the workforce, and improving working conditions.

Community support and local economic development

Social connectedness can be improved using community building and regeneration programmes, structured opportunities for participation, provision of social support programmes, community arts programmes and physical activity. A positive response from local communities towards LED helps to ensure the local investment climate is functional for local businesses. A range of factors can help engender a positive response from the local community. These include supporting small and medium sized enterprises; encouraging the formation of new enterprises; attracting external investment (nationally and internationally); and investing in physical (hard) and soft infrastructure (e.g. educational and workforce development, institutional support systems and regulatory issues). Other factors are supporting the growth of particular clusters of businesses; targeting particular parts of the city for regeneration or growth (areas based initiatives); supporting informal and newly emerging businesses; and targeting certain disadvantaged groups (World Bank 2008).
Higher education levels

Education is such a strong determinant of health and wellbeing that improving the education levels of those within communities can result in many positive health outcomes. Those with higher education levels are more likely to participate in the labour market, face lower risks of unemployment, have greater access to further training and receive higher earnings, on average (Jamieson 2007). Nonetheless, schemes run with the aim of improving skill levels in young people have had mixed results from evaluation. Results range from finding that training increases the likelihood of obtaining a ‘good job’ to finding that some schemes may not actually be able to help the most disadvantaged (London’s Health Commission 2001).

Skilled workforce

A skilled local workforce is crucial to being able to meet local demand for employment. If there is a skill shortage, employers will need to employ people outside of the local area. To sustain growth and improve productivity, New Zealand needs a well-educated, skilled and adaptable workforce. Skill shortages are often cited as a key impediment to business growth (Jamieson 2007).

Improving working conditions

Improving working conditions can improve the health and wellbeing of employees. Working conditions relate to not just the physical environment in which one works but the culture of the workplace as well. Improvements in health during employment can be achieved by: increasing the variety and understanding of the different tasks in a production process; workforce participation in identification of problems and their solutions; improving the quality of the work; and, increasing the level of job satisfaction (London’s Health Commission 2001).

2.2.5 Summary of economic development section

To conclude this section, economic development and associated issues have a major impact on social cohesion, health and wellbeing. The evidence indicates employment, economic growth and income are closely linked with quality of life. There are adverse effects associated with unemployment and poor working conditions. The Flaxmere area
has suffered economically due to its geographic isolation and high development costs. Although growth has been slow, there is now increased attention to local economic development needs and several educational institutions have been established in the area. Most workers from Flaxmere travel elsewhere for employment. While Māori and Pacific peoples are over-represented in terms of low incomes and poor educational outcomes, cultural specific initiatives such as kura kaupapa are likely to improve future outcomes. The following section discusses crime and safety in relation to health.

2.3 Safety

This section presents key findings on the impacts that safety and crime have on health and wellbeing in terms of injury, fear of crime, restricted mobility and social exclusion.

2.3.1 Impacts of safety/crime on health and wellbeing

*Injuries – physical and psychological*

Injuries received from criminal activities, while only a small proportion of all recorded crime, include physical injuries such as fractures, bruises and infection with sexually transmitted diseases; and psychological injury such as post traumatic stress disorder which can be serious and long lasting (Cohen and Miller 1998, Norris and Kaniasty 1994). Experience and fear of crime impact on health through stress, sleeping difficulties, loss of appetite, depression, loss of confidence and increased use of coping methods that harm health such as smoking or alcohol misuse (McCabe and Raine 1997).

*Increased fear of crime and decreased perception of safety*

Fear of crime and decreased perception of one’s safety results from being affected by crime both directly and indirectly. Fear of crime can profoundly affect the quality of individuals’ lives by causing mental distress and social exclusion. It is not necessarily the result of previous victimisation and those most in fear of crime are not necessarily those most vulnerable (Hirschfield, 2003:2). An increased fear of crime and reduced perception of safety has flow-on effects, such as spending more time indoors away from social networks.
A national survey of crime victims found that just over a third of participants thought crime was a problem in their neighbourhood (Morris and Reilly 2003). This represented little change from the findings of the earlier survey in 1996. The survey did not show a clear relationship between either the incidence or prevalence of victimisation and people's perceptions of local crime problems, although there was a relationship between worry about victimisation and perceptions of local crime problems. Participants’ perceptions of local problems did not focus only on crime. They were often concerned about other features of the neighbourhood such as speeding cars, teenagers hanging around, rubbish and litter lying about, uncontrolled dogs, broken windows and graffiti (Morris and Reilly 2003). The mental distress and social exclusion caused by fear of crime can significantly affect the quality of a person’s life (Evans and Fletcher 2000).

**Restricted mobility**

Crime, fear of crime and perceptions of safety can lead to behaviour changes such as avoidance behaviour (e.g. staying in after dark, avoiding certain areas, travelling by different means). Particular defence mechanisms are often different for various groups, for instance studies suggest young people may feel safer in a group of friends and a minority indicate that carrying a weapon increased their sense of personal security (Hirschfield 2003).

Perceived danger from traffic or from ‘stranger danger’ restricts children’s independent mobility, with subsequent increases in traffic to transport children, and decreases in fitness and psychological well-being of children who no longer cycle or walk at will (Public Health Advisory Committee 2003).

2.3.2 Local evidence on safety/crime

Flaxmere has been under intense media scrutiny recently and over the last few years for a number of high profile offences including violent assaults. Recently, the home invasion of a councillor’s daughter provoked community outrage against gangs in the area. Youth gang culture is a particular concern as 41% of the population of Flaxmere is under 20 years of age (Hastings District Council 2007c). A liquor ban in Flaxmere’s central business area was implemented in June 2007 based on community and police concerns about youth drinking and gang activity.
Hastings District Council is soon to commence research into youth gangs and escalating gang activity in the Hawkes Bay. The Ministry of Social Development has produced a recent report on youth gang issues in the Counties Manukau region, which has some findings of relevance to the Flaxmere context (Ministry of Social Development 2008b). There are some similarities between Counties Manukau and Flaxmere in terms of environmental features that tend to be associated with youth gang activity, including extreme economic deprivation, relatively high numbers of youth and issues of marginalisation. There is no reliable data on the prevalence of involvement in youth gangs and extent of offending in Counties Manukau and this is likely to be the case for Flaxmere.

A range of contributing factors to youth gang involvement were identified, including familial economic deprivation, parental stress, non-attendance at school and lack of engagement with social services, desire for status and peer pressure (Ministry of Social Development 2008b). The report acknowledges several barriers to government and community responses, but also highlights international evidence endorsing a multi-systemic approach to youth gang prevention and intervention strategies. It draws on an international model encompassing five broad areas for action; organisational development and change, community organisation, social intervention, educational and job-related opportunities, and suppression (which includes incarceration and supervision).

While there has been an increase in a range of specific crimes including homicides, burglaries, grievous/serious assaults, intimidation/threats, sexual attacks and cannabis use over the past two to three years, the overall crime rate reduced in the Hastings district by 21% between 1997 and 2006 (Bevin 2007). The Hastings District Council recognises that safety is an issue for its residents. In the Draft Central Business Districts’ Safety Plan for Hastings, Havelock North and Flaxmere (Hastings District Council 2007c), the six key goals centre on increasing safety and reducing crime:

- provide visible and comprehensive security and policing
- promote responsible alcohol use and management
- increase the perception of safety
- address the crime and safety issues relating to youth
create a safe physical environment

reduce the presence of graffiti (Kaye 2008).

Aspects of the current design of Flaxmere may contribute to crime levels in terms of providing opportunities for antisocial or criminal behavior, and low visibility and public surveillance. For instance, the currently enclosed Flaxmere Walkway has little opportunity for surveillance, and increases opportunities for antisocial behaviour (Hastings District Council 2007a). Similarly, the skate bowl is isolated from other activities and may provide opportunities for crime or anti-social behaviour. The shopping centre faces inward, with poor passive surveillance at the rear (Hastings District Council 2007a).

2.3.3 Evidence related to population groups

Pacific families

Research indicates that Pacific people in general are often victims of crime and are concerned about their safety. The groups most likely to be repeat victims of assaults included Pacific peoples and those at both the lower and higher ends of the socio-economic spectrum (Morris and Reilly 2003). The 1996 national survey of crime victims suggested that Pacific peoples experienced a relatively high rate of violent victimisation. However, this tentative finding was not confirmed by the prevalence rates in the 2001 survey which had a larger sample of Pacific participants. On the other hand, Pacific incidence rates were reasonably high and were higher than those for New Zealand European victims and victims of other ethnicities (Morris and Reilly 2003).

In a study of Pacific victims of crime, Pacific males were more likely than females to be victims of violence. These offences were more likely to occur at night, in a public place such as a pub, nightclub or a bar, involve alcohol, and more likely to remain unreported to the Police. However, females in the study were more likely (63%) to be victims of family violence and the perpetrator was more likely to be their partner and to be Pacific. The incidents reported by these participants were more likely to be part of 'on-going' domestic violence. Injured victims of family violence were less likely to seek medical attention (Koloto 2003).
The national survey of crime victims found very high levels of worry about victimisation amongst Pacific participants (Morris and Reilly 2003). Women of all ethnicities were more likely to be 'very worried' about almost all forms of victimisation than men of the same ethnicities. Across all the forms of victimisation asked about, a greater proportion of Pacific women than Māori and European women said they were 'very worried'. At 60%, Asian people were far more likely than other ethnic groups to report that fear of crime affected their quality of life, either moderately or a great deal. Europeans were the least likely to do so (36%), while Māori and Pacific peoples fell in the middle of the range, at 47%. In each ethnic group, women were more likely than men to report that fear of crime affected their quality of life (Mayhew & Reilly 2007).

There were also significant differences between ethnic groups in terms of concern about being racially harassed on the street and being assaulted on account of race, with Pacific participants, in particular, expressed very high levels of worry about these (Morris and Reilly 2003).

Pacific people are also over-represented in statistics on perpetration of crime. Compared with the total population they have higher rates of conviction and prosecution (Statistics New Zealand 2002). The younger age structure of the Pacific population gives a partial explanation but does not account for the finding. It is likely that other factors contribute such as socioeconomic status, unemployment or low status jobs as these factors tend to be associated with criminal offending (Statistics New Zealand 2002).

**Māori youth**

Compared with non-Māori, Māori are at greater risk of being both victims and perpetrators of crime. Māori are over-represented in crime statistics particularly those relating to offending and incarceration. On average, Māori youth are arrested for less severe offences than non-Māori. However, Māori youth are more frequently referred by police to the Youth Court for minor offences which results in more serious outcomes than if they had been required to take part in family group conferences (Robson and Harris 2007). Young Māori men also had higher incarceration rates than young non-Māori men;
in 2003 2% of Māori men aged 20-29 years were in prison while only 0.3% of non-Māori men in the same age group were in prison (Robson et al 2007).

It is important to treat ethnicity-specific crime statistics with caution, as there may be inaccuracies in collection of ethnicity data. For instance, the ethnicity identification may be made by the prosecuting authority rather than by the offender. In addition, the frequency with which some ethnic groups appear in crime statistics may reflect higher visibility of some crimes and a greater likelihood of being apprehended (Statistics New Zealand 2002).

A national survey of crime victims found young people and Māori, especially Māori women, were among those most at risk of victimization (Morris and Reilly 2003). Māori, young people and women were also among those most likely to be repeat victims of violent and other crimes. In the study Māori participants also tended to be more worried about crime than New Zealand European participants. Risk of victimisation was related to sole parenthood, being unemployed or on a benefit, living in rented accommodation, living in socioeconomically deprived areas, and being of younger age (15-19 years) (Robson and Harris 2007).

**Older people**

Despite concerns about personal safety from crime, older New Zealanders are less likely to be victims of crime, including violent offending, than younger people (Ministry of Social Development 2005). Nonetheless, research shows that older people are concerned about their safety which impacts particularly on their level of physical activity and degree of social inclusion. Research with older people in Portugal has suggested that neighbourhood safety is related to total physical activity, activity in leisure time, and sporting activities’ (Mota et al 2007). Older people’s perceptions of safety are influenced by socioeconomic status of the neighbourhoods in which they live. A large Norwegian study with comparatively healthy older people found that differences in physical activity between neighbourhoods were not explained by differences in health status, but by
socioeconomic status, levels of neighbourhood violence [for men] and partly by perceptions of safety [for women]’ (Piro et al 2006).

Perceptions of older peoples’ safety relate to fear of crime but also to fear of public transport, traffic, driving and concerns about walking. Safety concerns in relation to walking include high-speed traffic, incomplete footpaths and unconnected routes, and electronic signals at intersections that are often timed to suit younger or more active people.

2.3.4 Strategies to reduce adverse effects

Drawing from the literature, there are a number of factors to consider when thinking about how to prevent or reduce crime and increase safety. These factors include sound urban planning, including making communities more accessible and considering the type and condition of the surrounding buildings.

*Crime prevention through urban planning*

As the number of people increase in an area, the perception of safety can improve if the environment is conductive to this, using Crime Prevention Through Environmental Design (CPTED) principles. Crime prevention through interventions that reduce fear, prevent situational crime and target criminal and anti-social behaviour has been shown to generate largely positive health impacts (Hirschfield 2003). Urban planning and redevelopment can affect community reputation and safety in a number of ways.

The US-based Smart Growth Network advocates using planning to make existing and new communities more liveable, primarily in response to urban sprawl, and the associated problems for transport (such as motorway congestion and air pollution), health (such as traffic injuries, obesity and pollution-related illness), and social effects such as social isolation (Frumkin et al 2004).

*Accessible communities*

Clear and logical layout, safe movement and connections, well lit areas, quality environments, and walkable communities result in areas that are more accessible to the people that live in them. This leads to an increased perception of safety and connectivity.
with others. It also results in a sense of ownership over the space, which has implications for developing positive community identity.

People feel safer when areas are visible and well lit. Passageways and pathways can be built or modified to maximise visibility (Carter et al 2002). A systematic review of community lighting showed an overall reduction in crime of 20% in well-lit areas versus control areas, and that the financial savings from reduced crime greatly exceeded the costs of the improved lighting (Farrington and Walsh 2002).

More walkable communities often have greater levels of social connectedness which enhances community reputation and self-perception (Leyden, 2003). People feel safe when they feel able to do what they normally would do, without concern about their own physical safety and the safety of others.

**Urban renewal strategies**

The type and condition of buildings, including houses, affect people’s perceptions of health and safety. For example, poor quality residential environments often feel unsafe, and improving this has been an aim of urban regeneration programmes in the UK, although the overall effect of renewal programmes on community health and wellbeing is unclear (Public Health Advisory Committee 2008).

2.3.5 Summary of safety section

To summarise the impacts of safety and crime, evidence suggests both perceived and actual crime levels affect health and social exclusion. Flaxmere currently has a high profile in the media as affected by violent crime. Greater attention is being given to youth crime in the area, especially youth gang activity. It is also acknowledged that some aspects of the design of the urban environment may foster opportunities to commit crimes or anti-social behavior, such as low visibility and poor surveillance of public spaces. Compared with the general population, both Māori and Pacific peoples are at a higher risk of being victims and perpetrators of crime. While older people as a group have relatively lower levels of crime victimisation, perceptions of crime levels and anxiety can contribute to social exclusion and poor mental health. The final section below examines the influence of neighbourhood-level determinants of health.
2.4 Neighbourhood housing

2.4.1 Impacts of neighbourhood housing on health and wellbeing

This section presents findings on the impacts of neighbourhood housing on health and wellbeing, in terms of the following neighbourhood-level determinants of health: streetscape design and housing affordability.

Streetscape design

Urban sprawl has been defined as a built environment characterised by a widely dispersed population in low density residential development; separation of homes, shops and workplaces; lack of distinct, thriving centres of activity, such as town centres, and large block sizes and poor access from one place to another (Public Health Advisory Committee 2008).

Reviews of international evidence indicate a range of potential health benefits are associated with good neighbourhood design and high levels of street ‘connectivity’. For instance, walkable neighbourhoods, that have higher residential density and good street connectivity, tend to promote more walking and cycling (Public Health Advisory Committee 2008). Land use mix refers to the relative proximity and amounts of different land uses within a given area, such as commercial, residential, green space and services. Studies have found a positive correlation between land-use mix, residential density, and intersection density with the number of minutes of moderate physical activity per day (Public Health Advisory Committee 2008). A study which examined the benefits of developing mixed-use suburban workplaces reported that it encouraged more ridesharing, walking, and cycling (Public Health Advisory Committee 2008).

Street connectivity refers to the directness or number of alternative routes available between origins and destinations (Public Health Advisory Committee 2008). A well connected street network is one that provides many potential routes between destinations, enabling travellers to select the most direct route and minimise travel time. A grid pattern of streets decreases trip distances and increases route choices, making walking and cycling more appealing (Public Health Advisory Committee 2008). One American
study found increased levels of walking for commuting purposes amongst schoolchildren from four US schools in areas with high levels of street connectivity. Another study found that long distances between residential and commercial areas, and barriers such as wide arterial roads, reduced frequency of walking (cited in Public Health Advisory Committee 2008).

Recent New Zealand research has examined the impact of urban density, land use mix, and street connectivity on commuting behaviour in Auckland (Badland et al 2007). The study explored transport related physical activity levels of people who lived within 5km of their workplace. The study found that people who lived along the most connected streets were almost seven times more likely to walk or cycle to work as people who lived in the least connected streets.

Another relevant concept is street scale, a three dimensional design concept that assesses the experience of pedestrian and cycle travel (Public Health Advisory Committee 2008). As pedestrians and cyclists move more slowly and are less protected than those in cars they tend to be more sensitive to scale and details of the environment. Contemporary urban developments, especially those characterised by sprawl, are designed to suit the motorist and tend to be dominated by large buildings and signage to enable drivers to process details rapidly. In contrast, pedestrian-oriented environments are far richer in building and street design, promote slower movement of traffic and can contribute to greater safety (Public Health Advisory Committee 2008).

Research indicates that designing neighbourhoods that encourage, or at least do not inhibit, people from walking or cycling will increase the number of walking or cycling trips, thereby producing health benefits (Public Health Advisory Committee 2008). Neighbourhoods can be designed to better suit pedestrians and cyclists. Aesthetic features such as the attractiveness of an area, design of buildings, landscaping, and the size and orientation of building facades can influence perceptions of walkability (Public Health Advisory Committee 2008). The walkability of neighbourhoods can be enhanced through density, mixed use, street layout and connectivity, and traffic calming measures.
Research findings show that the presence or absence of cycle ways can significantly affect levels of cycling (Public Health Advisory Committee 2008).

A key factor with links to health is the design of streets including green spaces such as parks. A Scandinavian study found that visible open space near the home, availability of semi-private and open places such as porches, gardens and parks, and well maintained and equipped public spaces strongly predicted neighbourliness (cited in Public Health Advisory Committee 2008). The authors suggest that these semi-private and public spaces promote outdoor time which may in turn promote social interaction.

There is growing research on the mental health benefits of green space within urban areas, including recovery from stress, reduction of crime, facilitation of social contacts and assistance with child development (Maller et al 2002). Evidence indicates that viewing nature is positive for health in terms of improving concentration and productivity, reducing stress and improving psychological wellbeing. There are multiple benefits from even brief encounters with nature, or experiencing nature on a smaller scale, such as in urban parks (Maller et al 2002).

Another element of streetscape design is the use of public art. Research shows that public art can help to create attractive, safe and welcoming public spaces and can have a positive impact on social connectedness and sense of belonging. An evaluation of an ‘arts and environment’ scheme in Australia, for example, found that it made a significant contribution to social connectedness in the communities involved (McLeod et al 2004). Critical factors for the success of the scheme were the involvement of the community in the conceptualisation, planning, and, in some cases, the creation of the art work. Art works were designed to visually represent the valuing of diversity, and this was also modelled in the implementation of the project.

**Housing affordability and diversity**

Access to good quality and affordable housing is recognised as an important determinant of health (Auckland Regional Public Health Service 2005). Home ownership rates in
New Zealand are reducing and the cost of home ownership has risen since the 2001 Census (Jamieson 2007). On the other hand, in relative terms housing has become more affordable on average for those who rent, as household incomes have increased at a faster rate than rents. Nonetheless, there remain a substantial amount of people experiencing housing stress such as overcrowding or paying a disproportionate part of their income on housing costs (Jamieson 2007). The proportion of people living in crowded households increased in New Zealand between the 2001 and 2006 Census (Jamieson 2007). Research from the Wellington School of Medicine’s Housing and Health Research Programme found families on state housing waiting lists had greater health problems and were more likely to need hospital care than those already in state houses (Neville 2006 cited in Auckland Regional Public Health Service 2005).

A series of health and social concerns are associated with housing density and affordability issues. Housing density policies may result in residents being forced to relocate due to increased rents. Housing displacement has flow-on health and social effects including disrupted friendships, employment and education as well as psychiatric illness and stress. Displacement has the potential to increase social isolation and exclusion. Inequalities may also widen, for instance rising housing prices will benefit homeowners in compact, high density areas. On the other hand, intensification can also be a strategy to increase affordability of housing. When house price increases occur, increased density of housing is one way to make property more affordable, by reducing the size of the land purchased and sharing development costs. In theory it is also a way to reduce ongoing costs through increased accessibility to services and employment (Syme et al 2005).

The Auckland Regional Public Health Service (2006) has emphasised that the high cost of housing impacts on health and wellbeing through reducing the amount of income households can spend on other essential costs such as food, heating, health services, education and transport. The high cost of housing means that some people are sharing houses resulting in crowding and associated adverse health effects. A lack of affordable
houses suitable for large or extended families may also contribute to crowding in households (Auckland Regional Public Health Service 2006).

2.4.2 Local evidence on neighbourhood housing

While Flaxmere is technically a suburb of Hastings, it is surrounded by rural land and is, in effect, a separate community with a degree of isolation. Flaxmere shopping village has 22 shops including a small New World supermarket. The shopping centre services a catchment of approximately 10,000 people (Hastings District Council 2007a). Flaxmere has a high level of transience, for instance, Flaxmere College's student roll turns over by 30% each year (McLeod 2001). Transience will have an effect on the development and pattern of housing at a neighbourhood level.

Of the nearly 3000 houses in Flaxmere, 40% are rented, including around 300 houses or units owned or managed by Housing New Zealand (Hastings District Council 2007a). A large housing complex for older people, the council’s largest, is located close to the town centre. Although the area has sufficient open space overall, the draft urban design plan for Flaxmere notes concerns about the safety and usability of some of the existing parks and open spaces.

Housing development patterns

In the eighties a government scheme was implemented to assist people on low incomes to buy their own homes in Flaxmere, however people on low incomes could only afford cheap substandard homes. It has been suggested that a root cause of Flaxmere’s social problems was a previous council decision to allow low cost housing to be built in such high concentration (McLeod 2001). The pattern of housing development has also encouraged the development of second houses on properties, often without consideration of amenity or robust design or construction. Hastings District Council allowed cross-leasing of the sections which enabled compact development of housing (McLeod 2001). This type of intensification should be distinguished from planned housing intensification where buildings are designed to accommodate more people, as opposed to fitting more houses onto small amounts of land.
In a survey on infill residential development, Kingsley-Chatham residents rated the most common reasons for what they disliked about their neighbourhood as ‘houses located too close together’ and ‘section sizes being too small’ (first equal most frequent reasons). These two issues also featured in the top three reasons for residents in other Flaxmere areas (Flaxmere East and Lochain).

For Flaxmere residents, the most frequent response to the question “What do you like about your neighbourhood?” was proximity to schools, parks and walkways. This was followed by safe neighbourhood, large section sizes, affordability of housing, proximity of services, and variety of housing designs (Opus International Consultants 2007).

Streetscape design

The structure of the street network in Flaxmere tends to be comprised primarily of wide streets but there are problems with ‘dead ends’ and the dumping of rubbish (McLeod 2001). There are concerns about underdevelopment and unattractiveness of spare green spaces, for instance areas of waste land are used for crime and there is a lack of planting. In addition, there are only limited pedestrian walkways.

A previous mayor has acknowledged that the council’s decisions on the physical environment in Flaxmere have contributed to social problems in the area (McLeod 2001). Housing development needs to be accompanied by adequate fencing, pathways and green spaces.

Te Aranga Māori cultural landscape strategy

The design of streets and neighbourhoods can enhance the sense of community identity and social cohesion in an area, which is one of the three priorities in the Flaxmere Town Centre Urban Design Framework. In November 2006 a hui of Māori professionals and supporters spanning architecture, landscape architecture, arts and local and central government, gathered at Te Aranga Marae, Flaxmere, to discuss and formulate a draft National Māori cultural landscape strategy.

In Aotearoa the term ‘cultural landscape’ was initially adopted by Maru Whenua, the Māori arm of the Ministry of Environment, to more appropriately reflect the term ‘urban design’ acknowledging that in a Māori world view all physical landscapes are inseparable from tupuna (ancestors), events, occupations, and cultural practices. These dimensions
remain critical to cultural identity and to the maintenance of a ‘Māori sense of place’. It is about iwi, hapu and whanau more clearly being able to see ‘our faces in our places’. The notion of ‘sense of place’ is closely connected to Māori notions of environmental health and wellbeing.

The cultural landscape strategy is intended to support Territorial Authorities in developing meaningful and sustainable relationships with iwi, hapu and whanau in defining and developing cultural landscapes. Examples of areas that can support a sense of place include the following:

- Intact and protected landmarks, e.g. vegetation, wahi tapu
- Ensuring correct intact tribal names
- Ensuring and restoring water quality
- Built environments that acknowledge issues of building or development that acknowledge sympathetic environmental relationships and respect for tangata whenua and cultural sensitivities
- Urban landscapes which actively restore and reinscribe tribal histories and allow for both a visible and living tangata whenua urban presence. This may include public or community art which is known to contribute to a sense of belonging and social cohesion.\(^5\)

A wide range of beneficial outcomes of Te Aranga Strategy for Māori were identified, including enhanced Māori identity and wellbeing, social and cultural outcomes, a means of connection, sense of belonging, reclaiming sense of place, and a reassertion of the Māori voice in the landscape. For tauiwi (non-Māori), outcomes included a means of connection with tangata whenua and with Aotearoa/New Zealand, and an opportunity to consolidate their own identity and a sense of unity.

\(^5\) This information has been included with permission from Karl Wixon, Wiki Design and Consultancy Ltd, Havelock North.
2.4.3 Evidence related to population groups

**Pacific families**

Pacific families are disproportionately affected by housing affordability issues, and are more likely than the general population to live in substandard, overcrowded housing (St John and Wynd 2008). In 2004 over half (58%) of Pacific families were living in some degree of hardship (Robson and Harris 2007). Many Pacific people live in extended or larger families and New Zealand cities and towns often lack affordable or appropriate housing for larger families. Home ownership tends to be lower among Pacific Islands people, who often have larger and younger families as well as lower incomes (Jamieson 2007).

Housing costs exceeding 30% of income are more common in households with at least one non-European adult. For those households with at least one Pacific adult, the changes have been dramatic, the proportion of households with housing costs greater than 30% of income increasing from 15% in 1988 to 48% in 1997, then falling to 41% in 1998 and 2001, and then almost halving to 23% in 2004 (Ministry of Social Development 2007).

**Māori youth**

As more than half of the Māori population live in the most deprived deciles (Robson and Harris 2007), Māori youth are over-represented in terms of living in deprived areas. Like their Pacific counterparts, Māori youth are also likely to be living in families affected by housing affordability issues, and to have a greater likelihood of living in low quality or overcrowded housing (St John and Wynd 2008). For households with at least one Māori adult, the proportion of households with housing costs greater than 30% of income increased from 8% in 1988 to peak at 36% in 1997, fell slightly to 31% in 2001, then dropped sharply to 21% in 2004 (Ministry of Social Development 2007).

On average, Māori have significantly lower living standards compared with the total population, for instance in 2004, 40% of Māori families lived in hardship compared with 19% of European families. Between 2000 and 2004 there was a considerable increase,
from 7% to 17%, in the proportion of Māori living in severe hardship (Robson and Harris 2007). In 2006 45.9% of Māori children were living in families dependent on an income-tested benefit compared with 29.6% of Pacific and 12.3% of Pakeha children. Māori youth, and the Māori population as a whole, are more likely to be in rental or temporary accommodation, and to be living in crowded housing environments compared with non-Māori (Robson and Harris 2007).

**Older people**

International research with older people has found associations between physical activity levels and both walkable neighbourhoods and outdoor green space. For instance, US research found that older women living in walkable urban neighbourhoods were more likely than older suburban women to walk to services, despite having poorer health than their suburban counterparts (Patterson and Chapman 2004). Another study with older adults in the US found that despite declining physical function, older adults reported greater independence in instrumental activities, such as cooking, shopping, housework or managing money, when they live in environments with more land-use diversity (Clarke and George 2005).

The World Health Organisation has identified access to outdoor green space as linked with higher physical activity levels in older people (Edwards and Tsouros 2006). Perceptions of safety and attractive environments were also associated with higher levels of walking. A comprehensive international literature review concluded that outdoor environments had positive effects on older people’s mental health including stress reduction, life satisfaction and wellbeing (Sugiyama and Thompson 2007). Research also suggests that direct contact with nature contributes to increased mental health and psychological development, including stress reduction, decreased risk of stress related illnesses (Sugiyama and Thompson 2007). In the urban setting there is a need for regular opportunities to view nature and to have easy access to green spaces.
Compared with the general population, older people are likely to be more sensitive to the presence or absence of a high quality footpath system with safe street crossings, and having accessible services close to where they live (Frank et al 2005). New Zealand researchers have noted that falls by older people, which may occur at home or in the outdoor neighbourhood environment, are often not reported (Wilton and Davey 2007). Risk of falls may be exacerbated by poor neighbourhood design and lack of maintenance of footpaths or walking trails.

2.4.4 Strategies to reduce adverse effects

The literature suggests a range of strategies in relation to neighbourhood housing and street design that may reduce adverse effects and enhance positive implications for health.

- Neighbourhood design strategies to increase street connectivity, safety, street scale and attractiveness in order to improve walkability.
- Strategies to increase sense of community connection and identity through appropriate artwork and native planting for example.
- Regulate the quality and design of new housing.
- Inclusionary zoning policies, where developers are required to incorporate affordable housing options within new housing developments. A Bill currently before Parliament enables (but does not require) city and district councils to assess the level of affordable housing in their districts, and to develop and implement affordable-housing policies based on assessment of local affordable housing levels. The Bill will enable councils to require developers to either: include affordable housing in their developments, make payments towards the cost of providing affordable housing elsewhere, or provide land for the construction of affordable housing. However, councils can only introduce these requirements if they have first established evidence of affordable housing need in their area and developed a plan to deal with it that has been appropriately consulted on. The Bill is currently before Select Committee, report due July 2008.
- Increase building of state houses in areas of high need.
• Provision of loan schemes to enable more families in more areas to purchase their own homes.
• Reduce legislative barriers to establishing long-term tenancies as a measure to reduce transience and housing insecurity among people who rent.

2.4.5 Summary of neighbourhood housing section
To summarise the section on neighbourhood housing and design, there are a range of health benefits associated with neighbourhood design and connectivity of streets. Auckland research has confirmed that street connectivity levels are linked with the likelihood of walking or cycling to work. There are also close links between accessibility of green spaces such as parks and levels of social cohesion and mental health. There are concerns in Flaxmere about the safety and usability of existing green space, for instance some areas of existing waste land are used to commit crime.

3. Conclusion
Flaxmere’s population of approximately 10,000 residents has a relatively high proportion of Māori and Pacific peoples (Hastings District Council 2007a) and is in an urban area with significant health and deprivation issues.
This literature review is one component of the Health Impact Assessment (HIA) on the Flaxmere Town Centre Urban Design Framework. The framework emphasizes three main outcomes; a strong, prosperous and thriving economy, safe and secure communities, and an environment that is appreciated, protected and sustained for future generations.
The literature review has primarily drawn on existing reviews of evidence from recent HIAs and key public health reports. In addition, the reviewers searched for relevant new information from 2007-2008 to ensure assessment of more recent reviews.
In conclusion, the literature review has canvassed a broad range of evidence for the associations between four determinants of health – transport, economic development, safety and crime, and neighbourhood housing and street design – and population health and wellbeing. There is evidence for links between each of the determinants and health, with especially strong evidence for the impact of the urban environment on opportunities to undertake physical activity for either transport or leisure.
The review has included a range of local material to highlight the specific issues for Flaxmere in relation to the four determinants of health. Key issues from a public health perspective include the need to build a safer urban environment through the use of attractive and accessible green space, and the encouragement of greater physical activity through urban and streetscape design.
References

Auckland Regional Public Health Service (2005) *Housing and Health - A summary of selected research for Auckland Regional Public Health services*. Auckland: Auckland Regional Public Health Service.


Available at http://www.stats.govt.nz/~/media/Statistics/Publications/Analytical-reports/Pacific%20progress/pacific-progress-full-report.ashx


